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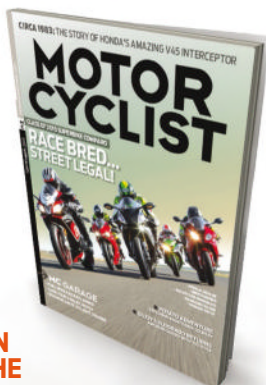
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ON THE COVER

What makes 862 hp and costs \$102,537? Our Class of 2015 superbike lineup, rolling tall down the back straight at Buttonwillow Raceway Park! Photo by Kevin Wing.

MOTORCYCLIST

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COPPELGÄNGER

Here's something else I don't get, yet I see it frequently: civilian riders dressing up like law enforcement. For quite some time, ex-police Kawasaki KZ1000Ps were the pseudo-cop machine of choice, rattling and whirring their way through traffic. Often, I'd see those riders dressed in a way that suggested, but wasn't actually, cop: white-and-black half helmet, roper gloves, tall boots, nondescript jacket.

As a generally law-abiding citizen, I tend to sit up and ride right when I suspect local police or the California Highway Patrol is in the immediate vicinity. The sight of a distinctive KZ1000 cruising up through traffic would, inevitably, lead me to slow up a little and give way. Then, after the CHP cycled through its first generation of BMW R-RT bikes, you'd see those beneath civilians, similarly scything through the usual mayhem that are California freeways. And now, to go along with a recalibration of senses brought on by the death of the Ford Crown Victoria (alas, the last LTD has perished) and its replacement by the Ford Explorer (of all things!) I get to watch out for Electra Glides piloted by men with badges and ticket books. Oh, my.

I have always wondered about the psychology of riders who want to look like the law but aren't. Some, I know, are off-duty or retired cops, and as a creature of habit myself, I

think I understand their sticking to familiar forms, like the dads in the neighborhood who think Dockers and Top-Siders are still in style. If you've actually served, I have no trouble you showing it.

A few I've queried who were not ever in law enforcement simply say they like the look, purposeful and serious. But I know one or two who ride ex-police bikes purely to game the system. One told me it was like a magic trick, getting traffic to move out of the way, to finally respect motorcycles.

I always wondered just how effective the neo-copbike approach was. Four years ago, I had a chance to find out. Between regular jobs I did a few freelance pieces, including a bit on a Kawasaki Concours 14 "police" bike. It was a demonstrator intended to show various agencies how good the platform was—and it definitely had the legs on the then-prevalent R1200RT used by CHP. I got the call to ride it around and write about the project. Sounded cool to me.

But it was the most horrifying few days in the saddle I'd ever had. First was the overwhelming self-consciousness. Apparently I'm not cut out to be a cop because I got really, really tired of being eyeballed. Worse was the way everyone around me drove. Fully aware that I had no license to speed—in fact, I felt far more aware of that than ever—I tried to keep the pace reasonable. Then everyone would crowd around me or hang just behind. After a few minutes on the highway, I noted a big gap in traffic just ahead. I'd look around for the *real* enforcement, haul ass for a little bit, and then watch the cycle repeat. Even worse, I had more than a few careless drivers come up behind really

quickly, realize what I was (or could be) too late, and jam on the brakes. One nitwit in a Nissan Altima almost took me out while he gathered it up. Drivers didn't get out of my way; they slowed down right in front of me. Arrggh, no!

"Hey, officer. No, no, I'm just the maintenance guy, putting on break-in miles. No, really!"

I returned the Kawasaki and got on my FZ1 to ride home and was never happier. Sometime later, I replayed this experience with my good friend who *is* a motor officer. He smiled broadly, laughed heartily, and gave me long, weary "Yuuuuup."

We have a couple of bikes in the fleet that, apparently, look a little cop-ish from the front: the white Kawasaki Versys 650 and the KTM 1290 Super Adventure. I've enjoyed drivers giving me a little more space and—though I could be imagining it—a smidgen more respect. At least until they figure out there's no siren or gun. So maybe "looking cop" does work a little. But I never count on it.

"I always wondered just how effective the neo-copbike approach was... I had a chance to find out."





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In the midst of a new era of crazy-powerful naked bikes like KTM's 1290 Super Duke R, Aprilia's Tuono V4 1100 RR, and BMW's S1000R, it's easy to overlook one of the bikes that kicked the whole scene off: Triumph's Speed Triple.

For 2016 the British firm is revamping the Speed Triple with wholesale engine and styling changes, and while it likely won't bother the latest crop of 200-hp monsters, the new model looks set to be a significant improvement on the outgoing version. At the moment there's still no official word on the bike, but our spy snapper managed to grab shots of the base Speed Triple and the higher-spec "R" version being ridden near the firm's factory, revealing bikes that are already looking production-ready in advance of their official launch later this year.

So what's new? A quick glance will spot the reshaped headlights, now less angular and more egg shaped, perhaps in tribute to the twin, circular lamps that the bike sported from the mid-'90s until 2010. Above them sits a new instrument cowl, now sporting a central air intake, and behind comes an entirely new set of

body panels, including radiator shrouds, a new seat unit, a reshaped fuel tank, and new bellypan. Other neat details include new bar-end-mounted mirrors and revised exhaust cans with reshaped, matte-aluminum heat shields.

Underneath all that there's the familiar aluminum frame, unchanged since it was redesigned for the 2011 model, and the same suspension as the current machine—which means Showa kit front and rear for the base bike and Öhlins forks and shock on the Speed Triple R. Brembo continues to supply the brakes, too, but the base Speed Triple has gained the higher-spec calipers that have so far been limited to the R.

So, then, the riding experience promises to be much like the old bike. But that's to ignore the changes that have been made to the age-old 1,050cc three-cylinder engine. In photos, it's clear that there are new exhaust headers and a new catalytic converter. The clutch and alternator covers are also reshaped, now carrying the triangular Triumph logo rather than just the firm's name. But insiders say the changes run much

deeper than that, extending as far as new electronic throttles that will allow the Speed Triple to take advantage of the sort of traction control and multiple riding modes that the firm has already introduced on the 2015 Tiger 800. It is significant in the case of the Speed Triple because ride-by-wire throttle and multiple maps will mean a potentially more aggressive and powerful engine that can be adjusted on the fly.

In terms of performance, the word is that the redesigned engine is making a fraction more power than the outgoing version, raising power from 133 hp to nearer 140 hp; it won't worry the likes of the BMW S1000R, but that's still enough to make for a very fast bike, particularly when coupled to the triple's burly torque delivery.

Although no launch date has been mentioned, it's likely to appear at shows later this year alongside a host of other revised models, including a restyled Explorer featuring optional electronic suspension, a Tiger Sport with the same engine tweaks as the Speed Triple, and an all-new Bonneville.

—Ben Purvis

DAINESE'S DLAIR AIRBAG TECHNOLOGY ARRIVES

Fifteen years in development, Dainese's Dlair airbag technology is finally being offered for sale in North America. Dlair Race has been in use by top-level racers since 2007 and available to the European public since 2011.

With the legal red tape finally cleared, Dainese is taking orders on its new Misano suit, which will retail for \$2,499 and offer premium protection features, including the wireless and fully automatic Dlair Race system. Dlair Race is comprised of three accelerometers, three gyroscopes, a GPS module, ECU, battery, airbag, and a gas cartridge, with all of the electronic components housed within the suit's speed hump. The entire system is said to add about 1.8 pounds to the suit.

Orders for Dlair Race-equipped Misano suits are being taken now, with delivery expected in September. Information regarding the availability of Dlair Street—Dainese's street-oriented airbag technology, on sale in Europe since the summer of 2012—is forthcoming. —Ari Henning



HONDA RC213V-S HRC's MotoGP Bike Hits the Street



There was a lot of doubt surrounding Honda's RC213V-S MotoGP streetbike prototype when it debuted at motorcycle shows in Europe last fall. Everyone assumed that Honda, of all companies, would never actually let any uncut HRC magic into the hands of the unwashed masses. Consider doubters' eyebrows raised. At an unveiling event the day before the GP of Catalunya, we watched Honda engineers and executives (as well as HRC riders Marc Marquez and Dani Pedrosa) stand next to this bike, one that Honda claims is basically the HRC racer with blinkers and lights. Price tag: \$184,000.

There are some caveats, predictably, even with the immense sticker price. The RCV-S does not include the pneumatic valve system, seamless gearbox, and adjustable steering stem that adorn the racebike. Aside from that, the engine is said to be nearly identical and capable of producing a claimed 212 hp—that's with the added "sports kit" installed (an estimated 12,000-euro up-charge). In stock form, horsepower numbers vary by country. Europe's bike is restricted to around 155 hp, while in Japan the bike will only produce about 70 hp in showroom trim.

In the US of A, the RCV-S will produce about 100 hp (not a typo). Unfortunately for American owners, the sports kit will not be officially available. One would think that someone who can afford the RCV-S will also have the means to acquire the parts to unlock the bike's true potential, but it will be an expensive gamble if horsepower is what you're after. Either way, every buyer will surely appreciate this slice of Grand Prix history, which is delicately crafted and will be in very short supply—only about 200 will be made. If you want one, go to rc213v-s.com before September 30 of this year.



Remember that Suzuki concept with the supercharged parallel twin and featherweight chassis? Savvy insiders say patents being submitted suggest the Recursion might actually appear.



SPEEDWAY REVIVAL



The Industry Hills Expo Center in the City of Industry, California, was the site of the Connor Penhall Memorial Cup Speedway race to kick off the Industry Racing season. Bruce Penhall, two-time World Speedway Champion in '81 and '82, and former CHiPs actor, partnered with the City of Industry to create the Memorial Cup in honor of his son Connor, who was killed by a drunk driver in 2012. Over the course of the night there were 35 events (or

"heats"), including races in First Division (500cc), Junior Speedway (250cc), Mini (150cc), and Pee Wee (50cc) divisions. Billy Janniro took first place for the Connor Penhall Memorial Cup main event, winning the \$8,500 purse and a custom helmet painted by Troy Lee Designs, with Broc Nicol in second place, and Billy Hamill in third. If you've never seen speedway in person, do yourself a favor and find an event. And don't call it flat track!

—Julia LaPalme

JULIA LAPALME



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BOSCH ADVANCED ELECTRONICS

To test the ever-advancing state of the art, Bosch invited us to its proving ground near the Motor City to try the newest generation of electronics on the 2015 Ducati Multistrada S, which is equipped with the Combined Braking System (eCBS), Ducati Wheelie Control (DWC), Rear Wheel Lift Control, and Ducati Traction Control (DTC). But the big news is the introduction of Cornering ABS, a.k.a. Motorcycle Stability Control (MSC).

To test the Bosch ABS we made several high- and low-speed runs on various surfaces, including wet and dry pavement and gravel. As expected, the bike remained upright even with copious amounts of brake pressure. The system cycled rapidly, instilling good control and confidence. To test extreme traction limits, we did several passes on a tile runway that was drenched with sprinklers, riding bikes outfitted with sturdy outriggers. With ABS switched completely off, traction was lost with just a touch of the brakes and the bike slammed onto the outrigger. Next, we did several wetted-tile runs with ABS switched on. Even stabbing the brakes the bike remained balanced on two wheels. Beautiful!

Where the ABS (and TC) worked as expected in a straight line, cornering ABS defied all logic. Bending into turns at up to 35 degrees of lean and then applying massive brake pressure only resulted in the smooth, controlled arc of the turn continuing without drama. As much as we dislike cliché phrases such as, "The future is here," it's pretty hard to argue with results like this.

Three versions of the Bosch ABS/ MSC units are available for manufacturers to choose from, each optimized to suit various types of motorcycles and their intended use.

—Ken Condon

The newest 9th Generation Bosch ABS unit is about the size of a point-and-shoot camera, weighs less than 2 pounds, and can sample data faster than ever.



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WHAT'S IN A NAME?

Let's be clear: Neither "badge" nor "brand" engineering are actually "engineering" as we commonly understand that term. Both activities center on marketing, psychology, and perception—not inventing, designing, or building anything new. Both are just strategies to sell more product by altering or modifying how the buyer perceives that product.

Badge engineering is easy to explain: Take an existing product that has one company's name on it and put another company's name on it to create a new product for the latter company to sell. The first badge-engineered bikes I encountered were "Indian" motorcycles of the '50s and '60s that were re-badged Royal Enfields, Velocettes, and even Italjet minibikes. A few years later, the ironically named American Eagle company badge engineered various British motocross bikes and even some Italian Laverdas.

This summer we witnessed two contemporary examples of badge engineering, both from Polaris' Victory brand. That firm competed at the Isle of Man TT with a rebadged Brammo Empulse R electric roadracer and at the Pike's Peak hill climb using what appeared to be heavily modified, liquid-cooled Indian engine technology mounted in a custom roadrace chassis. Since Polaris owns Victory, Brammo, and Indian, these badge-engineering examples are all in the family and presumably

a quick and effective way to radically alter and expand the customer perception of the formerly all-cruiser Victory brand.

Brand engineering is something entirely different, though it still seeks to manipulate marketing, psychology, and perception. Examples from the automotive industry are informative here. In the late '80s, the three largest Japanese automakers—Toyota, Nissan, and Honda—each decided to enter the luxury-car market by creating new brands in an effort to distinguish (or, in some cases, to distance) the new products from their previous efforts. So Toyota created Lexus, Nissan launched Infiniti, and Honda added the Acura nameplate. New dealerships were even established to further distance the new brands from the old, so in many cases the Lexus buyer might never encounter the name Toyota. This is brand engineering.

We see something similar in the motorcycle cruiser marketplace, where Yamaha has rebranded its cruiser line as Star Motorcycles, and Suzuki's cruiser bikes are all called Boulevards. Yamaha even goes so far as to maintain an entirely separate web presence for the Star product (Boulevards are still featured on the suzukicycles.com site), though you won't find the word Suzuki anywhere on any Boulevard bike, nor will you see anything labeled Yamaha on a Star machine. One crucial difference from the automotive examples above is that there is no real option of having stand-alone Star or Boulevard dealers, but since most dealerships carry several brands, over time Star and Boulevard will likely be considered stand-alone brands in the minds of many buyers.

Another relevant and recent example of motorcycle brand engineering is Ducati's efforts with the Scrambler name in an attempt to appeal to younger buyers and, at the same time, to establish a nostalgic connection to an older, simpler Ducati

model. The more prominent name on the tank is Scrambler, with the word Ducati only appearing in very small letters below. Looking at the motorcycle alone it's obviously a new Ducati model, but Ducati's marketing department is clearly pushing to make Scrambler a kind of brand within a brand, much like what Yamaha intends for the Star name. It will be

Rebadged Brammo eBikes represent Victory's ambitious attempt at reinventing its brand identity.

interesting to watch how the Scrambler brand evolves.

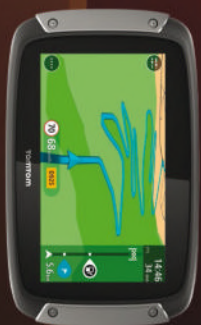
Shakespeare once asked, "What's in a name?" Would a motorcycle under another name sell just as well or better? Would an existing motorcycle given a new name transform the fortunes of the new company? Would image-conscious enthusiasts who wouldn't normally consider buying a bike from a Japanese—or Chinese, or Indian, or Russian—manufacturer buy an identical machine only with a more neutral name? Badge and brand engineering are attempts to answer these questions.



James Parker designed his first original motorcycle in 1971; his most recent design is the Mission R electric superbike. In between, he worked on multiple other motorcycle projects, including 30 years spent evolving the RADD front suspension system used on the Yamaha GTS1000 and various other prototypes.

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A close-up, high-contrast photograph of several cigars. The cigars are arranged diagonally, with the focus on the texture of the tobacco leaves and the dark, charred tips. The lighting is dramatic, highlighting the natural grain and imperfections of the tobacco.

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THRESHOLDS

One definition of a threshold is the level of intensity that must be exceeded for a certain reaction, result, or condition to occur—how much throttle it takes to accelerate, for example, or how much brake to slow or stop. A threshold can also be the point of excess—how much is too much gas, too much brake, or too much lean angle. Riding is an act of balancing those thresholds.

Both can be daunting to new riders even just attempting to set a motorcycle in motion. Finding the clutch engagement threshold and balancing it against the throttle threshold to move without lurching forward or stalling requires nimble coordination. Brake application also holds surprises for inexperienced riders. Blowing past the brake-engagement threshold with an unfamiliar hand-controlled lever can cause jerky stops or worse.

Rolling on the gas to drive off a corner is another threshold event. Acceleration does not commence with the first fractional throttle opening, as riders sometimes fear. At a brisk pace with moderately aggressive lean, threshold acceleration does not begin until somewhere between 10 and 40 percent of throttle opening, depending on the turn's radius, camber, and elevation characteristics, as cornering forces, tire friction, and gravity itself must be overcome. With the throttle just open a smidge, riders often notice they could have been more aggressive with their roll-on if they'd only crossed the acceleration threshold sooner.

“The pivotal questions always remain the same: What’s too much and what’s too little?”

Our most common riding questions revolve around thresholds. When do the tires slide out and cause a crash? How hard can you brake before you lock up the front tire? If you open the throttle too quickly, will you wheelie over backward and end up on your head? The pivotal questions always remain the same: What’s too much and what’s too little?

Riders who avoid quick directional changes for fear of washing out the front tire exemplify this confusion. Being unfamiliar with the tires’ grip limits, they imagine the forces generated by quickly snapping the bike over to full lean might exceed the grip threshold and cause a crash. This is possible, of course, but given acceptable tire, road surface, and temperature conditions, not very likely. The grip-limit threshold is much higher than most riders imagine it to be. Becoming familiar with this threshold improves a rider’s crash-avoidance ability.

Not so long ago, finding peak power/traction thresholds was a precarious proposition. Back in the early '90s, peaky, two-stroke, 500cc GP bikes required uncanny skill and sensitivity to ride fast. A good rider had to be able to dial in just enough power *beyond* the absolute traction threshold to produce wheelspin for, among other things, slide-steering and awesome, crossed-up corner exits. Exceed that threshold by too much, of course, and a spectacular high-side crash was the result.

Electronic controls have since radically altered how riders interact with these thresholds, both on the racetrack and on the street. Antilock braking systems, traction control, and even slide control are all readily available and will only improve in the near future. Some bikes already allow you to tailor varying degrees of wheelspin for each individual corner. Predictive slide control is even rumored to be on the digital horizon. Wheelspin is now monitored in milliseconds; human reaction time—roughly 100

times slower to respond—is simply no match for modern electronic rider aids. These have made the various thresholds less scary but no less important.

After training more than 10,000 students at the California Superbike School using BMW S1000RRs equipped with a full battery of electronic rider aids, I’ve discovered that a rider’s understanding of the core technical skills—specifically understanding

Racers spend their careers exploring thresholds. Said Marc Marquez after his crash at Mugello: “I was going over the limit every corner and then in the end I crash.”

and navigating these same acceleration, braking, and cornering thresholds—still remains our top training priority. Even with all the electronic safety nets, mastery of these core basics builds confidence and leads riders to a fuller appreciation of how to skillfully incorporate electronic controls into their riding and utilize them to their greatest advantage.



Keith Code, credited as the father of modern track schools, founded his California Superbike School in 1980 and currently operates programs in 11 countries and on six continents. His *A Twist of the Wrist* series of books (and DVDs) are thought by many to be the bible of cornering.

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WHAT'S YOUR THING?

There's no accounting for taste," Smokey said, leaning on a railing outside Slim's Last Chance Saloon after last month's Vintage Motorcycle Enthusiasts meeting.

Sipping suds, we sneered benignly at a candy-green and flake-gold mayhem of Harley-look sheets and billets, bloused together around an S&S mill and surmounted by a jockey saddle the approximate size and appearance of a used sanitary pad. Some people dream in color, and those colors can be pretty surreal.

Or, as Smoke put it, shrugging, "I guess that's his thing."

Shinier even than the Harlesque barhopper was an Indian-built Enfield single parked a few slots down. From the hand-hammered al-yoo-minium fuel cell to the big Smiths clock to the reverse megaphone pipe to the sparkling alloy rearsets, the entire bike was polished like an officer's buttons. On its side panel, picked out in green pinstripes, the numerals "672" politely announced a UK-sourced engine kit replacing piston, rod, crank, head, cylinder liner, and gearset. There were aftermarket shocks, a cartridge fork, and a big carb hung on there too.

"I've got about \$6,000 in parts," its young (and most likely unmarried) owner explained, "on a \$3,000 bike."

Then he smiled slightly, just enough to let a Simichromed twinkle of future plans slip through his glasses. It doesn't matter to anyone else whether his big single is a perfect haiku of

"I dunno," I said, taking a long pull off America's last non-hipster beer. "I guess it's just my thing."

motorcycling refinement or the road-bumblng equivalent of a highly polished turd. It's his thing.

For the past couple of days, courtesy of MotoDuvall, I've been careening cheerfully about on a sidehack rig built on a '98 BMW R1200C. This mash-up of Teutonic cruiser with Iowan Motorvation Spyder car around a PoinThree subframe from the Side Effects shop in Kamloops is two things: as eccentric as racquetball spats and as improbably delightful as ultralight renditions of WWI fighter aircraft. It's Jim's thing and not entirely my cuppa tea, but I haven't minded the sip at all.

Down in Oregon, Illuminati MC past prez Steve renewed his subscription for pallets of starter motors to bolt to his stroker Dyna, which makes torque like a Rolls-Royce Phantom and goes through starter gears like an orca through harp seals. His mechanic is still afraid to ride the thing, and the minute he ain't, Steve will level up to bigger and better danger.

They're not products, these customs. They're train sets. You lay new sidings, build a tunnel, add a cross-arm gate, and steam your little choo-choo on down the track until that loses its novelty. Then you fix something else—not because it's broken but because it's not perfected yet, burnishing your dream into the colors of the Platonic surreal.

Back in my own garage, a waspy orange bike awaits a new front wheel, carrier, rotor, caliper, and master cylinder. With her cartoonish 19-inch wheels, tight little track tank, and butt-floss tailsection, Homewrecker gratifies me as the most purified flat-track minimalism that could ever wear a license plate, but slashing through traffic along Seattle's rain-grooved routes gets sketchy with nothing but a Grimeca steering puck out back.

She's a 50-hp street single that looks classic, sounds thunderous, and underweighs her rider. Other riders regularly stop to gaze, lingeringly enough to make me jealous if she weren't titled in my name and locked up every night.

Pretty Wife doesn't see it. Caring bupkis for tradition, she's flummoxed by the very existence of a registered street motorcycle with a range measured in minutes rather than counties.

"I just don't get it," she told me, having materialized in the garage to summon me out of my reveries and into supper. "It's...sort of useless. You ride all kinds of stuff. What makes this bike special?"

"I dunno," I said, taking a long pull off America's last non-hipster beer. "I guess it's just my thing."

"What can I say? It's a Harley thing. If I have to explain it, you probably wouldn't understand."



Jack Lewis writes preternaturally clean copy, grievously stained by filthy words. In addition to journaling his motorcycle misadventures in *Motorcyclist* and on jaxworx.com, Jack has released books including an Iraq military memoir titled *Nothing in Reserve* and the definitive work on (Jack's) motorcycle riding, *Head Check*. We recommend them.



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FEELING FUELISH

Ari Henning's discourse on E10 fuel in the July issue is the most balanced I've seen recently, and that includes what I've seen from the American Motorcyclist Association. He remembered why ethanol was mandated: pollution control. The oxygenate it replaced, MTBE, is a durable man-made carcinogen that was starting to show up in ground water. Everyone else seems content to let us believe it's all about a powerful farm lobby and Archer-Daniels-Midland.

I've been using E10 whenever I could since the early '80s. The only problem I've had in 30-plus years of E10 use is with what seems to be swollen seals in the petcock of one of my current bikes, a 1980 Yamaha XS650.

I've always kept track of gas mileage, and contrary to what everyone else says, my comparisons showed a fairly consistent 3-percent improvement. I know all about the lower BTU content, but I suspect ethanol's higher latent heat of evaporation, and a resulting cooler intake, is more than enough to compensate for that.

Dana Shifflett / via email

My main issue with ethanol-blended fuel is its ability to absorb water then sink to the bottom of the tank. If you have gone more than three tank-loads of fuel without drawing from the bottom of the tank on reserve, do yourself a favor. Find a nice, quiet road and switch the fuel selector to reserve. You may find that the fuel residing at the bottom of your tank is not to your engine's liking. This can bring you to a stop at the side of the road until the crud at the bottom of the tank passes through the engine.

Denny Kindig / via email

In the Carolinas, we have several gas stations and chains of stations that sell non-ethanol gas, both regular and high octane, as well as race gas. You should refer your readers to the smartphone app, Pure Gas, that will help you find good gas in your area.

Jim Wright / via email

I expect you will get a number of iterations of this response to July's sidebar "How Much Gas Gets Left in the Pipes?" Your value of 304.8 given for volume is actually the length of the pipe in centimeters. The

LETTER OF THE MONTH

THAT FAINT-BLUE CLOUD

Regarding the "School's Out" comparison in the July issue: It is really great to see a shift away from horsepower wars and a return to strength in the market segment where it's just about the joy of riding. Finally, lightweight, decent ergonomics, and enough power to play without the constant risk of hitting warp speed. That's about 30–35 hp and 350 pounds.

Just like my 1975 Yamaha RD350—35 hp and 357 pounds. Six speeds. Disc brake. Decent riding position. If you like the buzz and vibration of riding, the elemental character of the machine, the little two-stroke will happily provide that as well.

No valves to adjust, no coolant to change or leak. No electric start to fail. Kick, twist, and go. With the added benefit of a faint-blue cloud.

Neil Christie / via email

Thanks, Neil, for understanding what we like so much about the new lightweight sportbikes.

(Though it's safe to say the horsepower wars continue; see our cover story this month.) To keep the two-stroke oil off your belongings, we're sending you a DrySpec D38 dry bag from Twisted Throttle (twistedthrottle.com; \$145). This 38-liter bag comes in three colors—black, gray, and orange—features universal slip-lock mounting straps, and has rigid core construction. It'll look great on the back of your RD. —Ed.



volume given of 0.16 gallon for a 10-foot pipe is correct.

The conclusion drawn of complete indifference may not be entirely accurate. For a 2-gallon fill-up, done twice in a 4-gallon tank, using a 15-foot hose, the concentration would be 1.5 times the 6 percent, or 9 percent. Which may now have some significance.

You might investigate what the dilution of the octane rating actually is for these numbers—if a volume has 90 percent of 91 octane and 10 percent of 85 octane, what is the resultant octane of that volume? This is the real question.

For motorcycles with knock sensors, this dilution will not result in engine damage but simply reduce the gas mileage by some small amount. For engines without knock sensors, such as a Harley-Davidson 1,690cc air-cooled engine in idling traffic on a 115-degree Las Vegas day, performance may be affected. Don't ask me how I know.

Richard Pietroski / via email

Our local chemical engineer, retired from a major oil company, says that while there are

chemical interactions that make this more than a simple volume equation, it's highly unlikely that this ratio would see more than a one-point drop in octane. —Ed.

Ari has answered one of my persistent and nagging questions: How much low octane are we getting out of the hose from the prior customer? I agree now that it's a negligible amount, but I still wonder why the hoses aren't vacated by vacuum after each use. And why isn't the fuel metered in most states to compensate for temperature? One last pet peeve: Who gets the tenth of a penny for each gallon pumped?

Michael Prata / Overland Park, KS

APPRECIATE THE APPRENTICE

James Parker's July column ripped the Band-Aid off an old wound and points to one of great missed opportunities in American education. In the mid-'90s, there was a big push to find a fix for our education system. Many looked to the German model that included the apprenticeship programs. We were told stories about the CEO of VW starting his engineering career making a screw with a file. The



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big hope was that this “high-tech vocational education” would meet the needs of non-college-bound students but be a lot more than just “shop class.” Local communities would get skilled workers like plumbers, bricklayers, and mechanics who would become the backbone of a new American economy.

It didn't happen. Many of the vocational education classes that were in place in the '90s are gone due to budget cuts—many missed opportunities. I bet there were a lot of great motorcycle mechanics in there who never got the chance to get started (damn it!). It turns out this is about motorcycles!

John Sperka / Stephens City, VA

Parker is correct about apprenticing. I am a middle- and high-school teacher and a college instructor. One of my strategies with struggling students over the years has been to redirect their focus, broadly, with anecdotes about how I was once like them, hot rodding cars, not going to school to be at the beach, etc., but then learned how to settle down and make it through college or a vocational program.

It breaks my heart to see how schools have been forced to do away with vocational programs. They fail to understand that the research that occurs at universities, using STEM, must pass through the vocationally inclined population to become profitable for the macro economy. That's the relationship between dreamers and doers. I hated math until I saw math in the relationship of tolerances between the moving parts of an engine and the longevity of that engine.

Hector Caraballosa / via email

SMALL-ARMS FIRE

In your test on the 300cc bikes, the top gear roll-on is not useful because riders know they have to downshift to get the revs up on these small engines. For commuter motorcycles such as these, the 0–60 mph would be more useful. I know because I have a 250R.

Dennis Quackenbush / via email

For 0–60 you can substitute quarter-mile times. In this case, the KTM RC390 led the pack with a 13.91-second run, 0.32 second up on the next-fastest Yamaha. —Ed.

“I hated math until I saw math in the relationship of tolerances between the moving parts of an engine and the longevity of that engine.”

When might we see a test of Old School vs. New School in the lightweight class? RD350 vs. R3? CB350 vs. CBR300? Let's see how far (or not) we have come. I think the question becomes something along the lines of: Does the new generation of lightweight buyers really care? Is it a matter of enthusiast vs. dabbler?

Darren Fulce / Bakersfield, CA

Interesting idea. Turns out Online Editor Brian Hatano is careless enough to leave the key for his '78 Yamaha RD400 around, and most of us have had a chance to ride it. Great bike in its day, but that day was a long time ago. Does that make us dabblers? —Ed.



COOK AND THE SV

In typical journalistic excess you greatly exaggerate the differences between [the SV650 and the FZ-07] (*Cook's Corner*, “Generation Gap,” July, MC). While in the end you really say only the brakes are different, the flavor of the article is negative toward the SV. I'm curious if your 15-year-old SV still has stock brakes: I bet the poor thing's brakes are terrible and nothing like they were when new. Those brake lines should have been replaced 10 years ago, and surely you replaced the stock pads with some HH pads?

Doug Freeman / via email

The answer's right in front of you, Doug. Cook's SV wears four-piston calipers from a Honda CBR600F, stainless-steel lines, and EBC HH+ pads. And even after all that, the brakes are barely on par with a bone-stock FZ-07's. That's progress, not “journalistic excess.” —Ed.

GEAR CHANGE

As someone who changes gearing often (for every touring trip), I read with interest your advice on breaking the countershaft nut loose. To use an SV650 as an example, as many modern bikes do not have a straight, flat path across both arms of the swingarm—like my Yamaha FZ1. I have stared repeatedly at it trying to come up with some apparatus that would work, but a straight bar or 2x4 won't. I have also noticed manufacturers seem to be “overtorquing” many of the nuts, probably for liability reasons.

I usually just roll the bike over to my nearby tire shop, which conveniently is only about half a block away, and bring the proper socket so they can just spin the nut off for me with an impact gun.

John M. Rico / via email

True, there are times when only a big impact gun will do the trick. —Ed.

MILLIONS SERVED

I am just curious to know whether McDonald's legal department has come after you over copyright issues for naming your letters column “MCMAIL.”

Or are you pretty much covered as long as your blow-in subscription cards don't have a box that says, “Check here if you'd like fries with that?”

Harry Viener / via email

It's office policy to shred any “cease and desist” letters that get past our shifty-eyed administrative assistant. And since you're asking, yes, we'd like fries with that. —Ed.



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ME & MY BIKE

**1998 Honda
CR500 Roadracer**

NAME
Brian Lloyd

AGE
50

HOME
Mukwonago,
Wisconsin


OCCUPATION
Owner,
Legacy Motorcycles/
Retired Auto Tech

➔ I had a kidney and liver transplant in August 2012. I worked as a master auto tech for 25 years, and exposure to carbon tetrachloride did me in. After my surgery, all I could think about was doing another trackday. Shortly after the operation I took my Buell XB12R to Blackhawk Farms, my local track. After one session a control rider came up and said, "You really gotta work on your style. You look terrible on the bike." I lifted my shirt, and I wasn't even healed yet! I was just happy to be on the bike. But his condescension motivated me: Not only am I going to come back and beat you, but I'll beat you on a bike I built!

I've been dreaming about this bike for almost 15 years. I raced motocross as a kid, and I really love the two-stroke powerband. I also have a CR500 motard—fun but limited at high speeds by front-end chatter because the geometry is all wrong.

I had to build this roadrace version because I couldn't buy what I wanted. The frame is partially a CR250, with some CR125, and the lower cradle is all mine. The front end is from a Suzuki GSX-R (I made my own triple clamps); so is most of the bodywork. The CR500 motor is heavily breathed on, making around 70 hp, and I built my own remote electric starter. You'd be worn out by the time you got it kickstarted! It took a lot of fabrication to get everything right. There are 1/4-inch clearances everywhere. I did all my own machining on a manual Bridgeport mill and gear lathe. It handles just like a 125GP bike. I haven't weighed it, but I know it's less than 250 pounds. Every part I put on weighs less than a stock CR part, except the SV650 rear wheel—I wanted more mass there to try to dampen the output of this monster two-stroke! Now I can't wait to take it back to Blackhawk.



A close-up, low-angle shot of a rider on a Harley-Davidson Ultra Limited Low motorcycle. The rider is wearing a black leather jacket, blue jeans, and black leather boots. The motorcycle is a deep red color with chrome accents. The background shows a paved road and distant hills under a clear sky.

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UNITED BY INDEPENDENTS

2016 MOTO GUZZI CALIFORNIA ELDORADO

Now That's a Guzzi!

THEY SAY
"A bigger, bolder
California."

WE SAY
"Not necessarily
bolder, but
certainly better."

➔ If you, like us, were waiting for one of Europe's oldest marques to drop a relentlessly retro cruiser, your patience has paid off. Moto Guzzi has answered the call with the new California Eldorado—heir to the famous 850cc full-dress tourer that debuted in the States more than 40 years ago—a model that further refines and expands MG's California cruiser lineup. This newest Eldo dives head first into the retro theme, with classic touches like chrome inserts on the fuel tank, spoke wheels wearing tubeless whitewall tires, and a plush saddle with removable pillion, sitting just 29.1 inches above the ground. (An optional low seat drops that height to 28.3 inches.)

Other way-back bits include elegant double pinstripes on the tank and fenders, full rider floorboards, and a buckhorn handlebar. In addition to ABS and the comprehensive electronics suite found on all Californias, the new Eldorado has cruise control as standard equipment. Like the first Eldorado, this is

a plush, comfortable motorcycle meant for open roads and long days in the saddle. Despite sharing engines, chassis, and many of the same components, however, the new Eldorado seems vastly different from the modern California 1400 introduced a couple of years back, though the '70s heritage is still emphasized.

The new 16-inch spoke wheels run fat-ish tubeless whitewall tires (130/90 front, 180/65 rear), framed by fuller fenders and long, chromed mufflers that extend nearly past the rear tire. The lines of the tank and fenders integrate with the shrouded rear shock absorbers, a plate-sized rear taillight, and classic round turn signals. There are no bags here, but accessory units can easily be added, and Guzzi has rolled out a full suite of add-ons to complement the Eldo.

Up front, the Eldorado runs the amoeba-shaped polyelliptical headlight equipped with LED daylight running lights (like the Custom and Touring models), with an analog rev counter,



A smartphone link allows Eldo riders to tap into live ride data via Guzzi's new multimedia platform, dubbed MG-MP.

multifunction speedo, and warning lights ensconced inside a big solo gauge mounted atop the headlight shell.

On the Eldorado, you sit low in the bike, the generous floorboards sailing right beneath your feet and the comfortable pullback handlebar grips coming right to hand. Hit the starter and roll it on; the power comes smoothly and easily, with the torque peak of 88.5 pound-feet coming early, at 2,750 rpm, but in a mellow fashion. With its suspension settings on the softer side of the spectrum (along with the seat padding) the Eldo brings an agreeable ride quality yet will respond quite readily to inputs.

When you do touch down, the floorboards alert you to the fact that you're coming close to hard parts. The Eldo's pullback handlebar allows for quick corrections, and even though you're in a relaxed, upright riding position, that easy turn-in means the Eldo can be ridden aggressively in the twisties. For such a big bike, handling is almost nimble, even in mid-corner, its agility limited primarily by the width of its floorboards. Although the suspension is tuned to be plush on the Eldorado, it never felt overmatched, and we didn't bottom out, even on some nasty bumps flying down the autostrada.

Like the California Custom, the Eldo also employs ride-by-wire multi-map electronic engine management with three map options: Turismo (touring), Veloce (sport), and Pioggia (which, if it doesn't mean rain, could be some kind of pasta dish). Similarly, the traction control, referred to as MGCT, can be adjusted to any of three sensitivity levels. The Eldo also gets Guzzi's new multimedia platform, MG-MP, an option that allows you to link the bike to your smartphone and then to the web. Once you download the free app and mount your smartphone on the bike, it becomes an onboard computer, letting you view parameters including speed and revs, engine power, torque, and more.

And there's that modern/vintage dichotomy at work. How many bikes can you say carry forward such classic styling—and their own styling, not something borrowed—with a really good, modern motorcycle? Moto Guzzi has managed to preserve everything we like dynamically about the California 1400, fire-hose it with authentic retro styling, and yet preserve its functionality.

THAT'S AUDACIOUS!

Stealthier, leaner, and meaner, the new Audace is the murdered-out cousin to last year's California Custom, sharing the same frame, engine, and cylinder cutouts under the gas tank but toning it all down with a matte-black color scheme—even on the engine, heads, and exhaust

system. The Audace also ditches the bulkier bits, beginning with the chunky headlight and wide floorboards. It slims down the fenders, shortens the mufflers, and swaps in forward-set footpegs with a conventional shift lever.

Polished cylinder fins and valve-cover ribs as well as a suede-trimmed seat signal the Audace's upmarket aspirations, though you'll probably focus on that super-wide drag bar and the new, naked fork framing a brief carbon-fiber fender. And you can't miss the fully adjustable rear shocks framing the fat 200/60-16 rear tire. Unlike the unabashedly retro Eldorado, the Audace's modern design is clearly aimed at a younger audience. At \$15,490, it's also \$500 less expensive, which they'll no doubt appreciate.

That handlebar stretches you out a bit, but once you drop the hammer, the Audace feels livelier than its California sibling; Guzzi says it has a better power-to-weight ratio. The 1,380cc V-twin makes a touch more torque here than in the Eldo—89.2 pound-feet—but has the same peak of 96 hp (all claimed numbers). As you'd expect from a big-inch Guzzi, power hits early and surprisingly hard, though throttle response is gentle enough.

Moto Guzzi held the Audace introduction alongside the Eldorado, which set up an interesting study in contrasts. Although the two bikes share all major dimensions, the Audace doesn't handle as well. It steers heavily where the Eldo heels over with a light touch, a characteristic we're blaming on the 200mm-wide rear tire and 18-inch (in place of a 16-inch) front tire. Kudos to the well-damped suspension, however—which never came close to bottoming out—and the very responsive brakes. —Andy Cherney



EVOLUTION

A third rung on the new California 1400 ladder. Same chassis, same engine, same electronics; all-new/really old styling.

RIVALS

Honda Stateline, H-D Fat Boy, Star Roadliner



VERDICT 10

With its comfortable riding position, easy road manners, and retro good looks, the Eldorado doesn't disappoint.

TECH SPEC

PRICE	\$15,990
ENGINE	1380cc, 90° air/oil-cooled V-twin
TRANS/FINAL DRIVE	6-speed/shaft
CLAIMED POWER	96.0 hp @ 6500 rpm
CLAIMED TORQUE	88.5 lb.-ft. @ 2750 rpm
FRAME	Steel double cradle
FRONT SUSPENSION	Sachs 46mm fork; 4.7-in. travel
REAR SUSPENSION	Sachs shocks adjustable for spring preload; 4.7-in. travel
FRONT BRAKE	Brembo four-piston calipers, 320mm discs with ABS
REAR BRAKE	Brembo two-piston caliper, 282mm disc with ABS
RAKE/TRAIL	32.0°/5.6 in.
SEAT HEIGHT	29.1 in.
WHEELBASE	66.7 in.
FUEL CAPACITY	5.5 gal.
CLAIMED WEIGHT	692 lb. wet
AVAILABLE	Now
MORE INFO AT	motoguzzi-us.com

CLASS OF



It's hard to believe for those of us on the inside, but this is the 10th time we've gathered the troops to conduct our annual "Class of" sportbike test that pits the year's hottest new sport motorcycles against the standout machines from years past. ("Class of" flashbacks on the following pages highlight results from past tests.) This basic test format has taken many forms in recent years, comparing bikes with many different engine configurations and occasionally even bikes from different displacement categories, but recent trends have been somewhat more troubling, as we've been forced to address an ever-widening

performance gap between Japanese and European sportbikes. In 2012 we even conducted segregated Japanese and European "Class of" tests, tired of watching more advanced Euro bikes consistently trounce Japanese machines year after year.

Not so this year. Taking the arrival of an all-new and hugely impressive Yamaha YZF-R1 as a signal that Japanese manufacturers have finally shaken off the dust of economic recession and returned attention to legitimate sportbike performance, we decided it was time for another classic, biggest-and-best, no-holds-barred, open-class sportbike shootout. We rounded up the three leading

2015

A Five-Way, Big-Bore Battle for Superbike Superiority

WORDS: Aaron Frank / PHOTOS: Kevin Wing



European superbikes—incidentally, all redesigned for 2015—the Aprilia RSV4 RF, BMW S1000RR, and Ducati 1299 Panigale S, along with the premium-spec M version of the aforementioned Yamaha YZF-R1 and also the Kawasaki Ninja ZX-10R, the current standard-bearer of Japanese literbike performance, and went to work.

As with previous years, we kicked off testing with a few hundred miles of SoCal street riding, up and over the Ortega Highway and out toward the highlands surrounding Idyllwild. Then, once the bikes were warmed up and run in, we subjected them to the usual battery of dyno runs and acceleration tests at the

dragstrip before reporting to the racetrack where we could sample handling at the limit. This year saw a change of road course venue after so many years testing at the desert oasis of Chuckwalla Valley Raceway. Instead we went to Buttonwillow Raceway Park's west loop, a better track for big-bore bikes with fast sections combined with quick direction changes and hard braking areas, where we could better assess high-speed handling and get deeper into the power of these so-powerful superbikes.

Does the R1M have what it takes to end what seems like ages of European sportbike superiority? Turn the page to find out.

“Even with too-tall gearing, there’s plenty of power to set the rear tire spinning and sliding.”



5TH PLACE

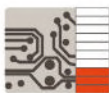
KAWASAKI NINJA ZX-10R



STREET



TRACK



TECHNOLOGY

» Kawasaki’s big-bore Ninja, a past “Class of” champion (2012) and perennial leader of the Japanese literbike fleet, is our archetype of the traditional inline-four superbike the likes of which has dominated this category sales-wise, if not performance-wise, ever since the very first Kawasaki Ninja—the GPz900R—defined the form in 1984.

Look closely and you’ll spy special 30th Anniversary graphics (a \$300 add) on this bike, highlighting Kawasaki’s long-term commitment to this design form. Like that very first Ninja, this latest iteration packs a liquid-cooled, DOHC, 16-valve inline-four displacing 998cc and producing 160.9 hp. That’s roughly 60 more horsepower than the original, but it’s the least powerful

of this group, lagging 4 hp behind the R1 and a whopping 24 hp behind the same-displacement S1000RR. It’s also the least sophisticated bike here, with three-level-adjustable (plus off) traction control and three power modes the extent of its rider aids. Kawasaki’s Intelligent antilock Brake System (KIBS) is a \$1,000 option not found on our testbike; that said, the Ninja’s powerful Tokico brake setup was praised by more than one tester for having better feel and feedback than some of the Brembo systems on other bikes.

On the open road, the ZX-10R resembles a poor man’s Beemer, with the same thick-cut feel and similarly comfortable ergonomics defined by a long, roomy cockpit, supportive saddle, and adequate legroom—though the bars are lower in relation to the seat. It also has the same broad-band, always-ready power delivery as the big Beemer, only without the same manic, arm-straining rush after the tach enters five digits.

You might think less power would make the ZX-10R easier to manage at the race-track; you would be wrong. Even with too-tall gearing, there’s plenty of power to set the rear tire spinning and sliding, and here the Ninja’s electronic deficits show. This is the only bike in the test without some form of 3-D inertial measurement unit—S-KTRC is a comparatively crude system that functions by comparing wheel speeds only—and it’s possible to get the bike into a lateral

CLASS OF
2007
June 2007, MC

1. Honda CBR600RR
2. Suzuki GSX-R1000
3. Yamaha YZF-R1
4. Kawasaki Ninja ZX-6R
5. Ducati 1098

Our very first “Class of” test was one of our most diverse, combining two Japanese 600s, two Japanese literbikes, and one Italian V-twin.

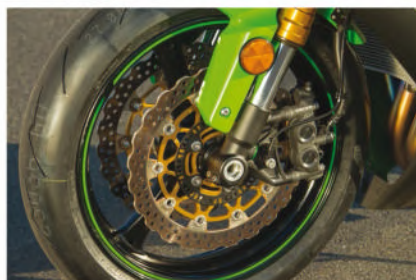


Honda’s supremely versatile CBR600RR—which remains largely unchanged and available today—came out on top.



slide that the electronics aren't prepared to counter. This shortcoming was made all the more apparent by the fact that our testbike struggled with rear-tire grip. In years past Kawasaki's sportbikes have exhibited excellent chassis behavior, but for some reason—despite no announced suspension changes and repeated adjustments—the ZX-10R could not be cured of a nasty tendency to skate the rear tire during all parts of a turn. This lack of cornering prowess held the Ninja back at the racetrack, where its best lap was over a second off the pace.

Rear-tire traction issues aside, the Ninja handled quite well once the suspension was adjusted to the recommended track settings. The squashed stock settings seem designed more for a low seat height in the showroom than snappy turn-in on the street; shimmed the rear upward 8mm and dropping the front 2mm delivered sharper steering response, aided by the fact that, at 442 pounds, this is the second-lightest bike here (only the 428-pound Ducati is lighter). Even compared to Öhlins hardware on other bikes, the Ninja's Showa Big Piston Fork (BPF) delivered exceptionally smooth action and predictable front-end feedback, but rear-end stability remained problematic, and rear tires wore significantly more quickly here than on other, more powerful machines.



Petal-cut rotors provide a little extra eye candy on the hardly sedate Ninja, and perhaps better cooling, too (above left). Fan-style tach is flashy but not as easy to decipher as a conventional needle (above right). Note the color-coordinated fork caps.

How quickly things change. Last updated in 2011, the Ninja ZX-10R is a fine bike that's showing its age alongside more powerful and capable rivals like the S1000RR and the all-new YZF-R1. It is, however, the most affordable bike here, undercutting the BMW by \$4,346, but that's faint praise, especially since this is the least sophisticated bike here.

(Keep in mind a base-model Aprilia RSV4 is \$1,000 more, and a base R1—with MotoGP-spec electronics—only adds \$1,900.) It's time for another Ninja update, and now that the supercharged H2 has shown that Kawasaki is back in the performance game, we fully expect that attention will turn to a revitalized ZX-10R next.

CLASS OF 2008

August 2008, MC

1. Honda CBR1000RR
2. Kawasaki Ninja ZX-10R
3. Suzuki GSX-R750
4. Yamaha YZF-R6
5. Suzuki GSX-R600

This year we named another legendary late-model Honda sportbike, the CBR1000RR, "most likely to succeed." It outcompeted one other over-achieving literbike and a serious challenge from Yamaha's thrilling-but-committed R6.





4TH PLACE

DUCATI 1299 PANIGALE S



STREET



TRACK



TECHNOLOGY

» What a difference 87cc makes! Bumping up the displacement of Ducati's ultra-short-stroke Superquadro V-twin (via even bigger bores) not only boosted rear-wheel horsepower to a remarkable 177.2—a full 23 hp more than the 1199 Panigale R we tested in 2013, albeit on two different brands of dyno—but also filled a big hole in the torque curve from 4,500 to 7,500 rpm, bringing midrange power the previous version sorely lacked. The 1199 Panigale suffered from peaky power delivery that required a lot of gearbox rowing in order to ride fast. Not anymore. Although still not as strong off the bottom as the old Testastretta, you can ride a gear higher on the 1299 and use all that torque—93.0 pound-feet, towering over the closest rival, the BMW with 80.8—for a swift kick right into what remains a screaming top-end rush.

Added displacement isn't the only upgrade; the addition of a six-axis inertial measurement unit (IMU) now feeds lean, pitch, and acceleration data into the information mix that informs wheelie control, three-level race ABS, and the Öhlins semi-active electronic suspension fit to



the S-model we selected for this test. (The IMU does not share information with the eight-level-adjustable DTC traction control.) An instantly addictive auto-blip quickshifter that delivers clutchless shifting up and down the gearbox is new this year, too.

Some things never change, however, like testers unanimously ranking the Panigale the worst streetbike of this bunch—even after this year's addition of the wider fairing and taller windscreen more akin to the Superleggera and softer saddle from the 899. The unusually flat handlebars put some testers' wrists at an awkward angle and while the 1299 has generous legroom, it's impossible to overstate just how much heat radiates off that underseat exhaust loop. This bike is torturous on a hot day. Shuddering low-speed acceleration, exacerbated by virtually no flywheel effect, too-quick clutch



Big, bad, Brembo M50 brake calipers bolstered by lean angle-informed ABS lend the Panigale S the best braking behavior of this bunch (above right). Ducati's TFT dash automatically reconfigures its display according to which ride mode you select, but fine details can be difficult to read in bright sunlight (above left).

CLASS OF 2009

July 2009, MC

1. Yamaha YZF-R1
2. Honda CBR600RR
3. Suzuki GSX-R1000
4. Kawasaki Ninja ZX-6R
5. Ducati 1198

"It's not the most powerful machine here, and it's certainly not the lightest. What it is, undeniably, is the most fun to ride." That's how we described

Yamaha's first crossplane-powered YZF-R1 superbike at the end of our 2009 test, and those sentiments still hold true today.





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Öhlins suspension with “event based” electronic control automatically adjusts damping in response to real-time road inputs; side-mounted positioning supports mass centralization (above left). This is what an Italian rump-roaster looks like (above right).

engagement, and sensitive throttle pickup, degrade around-town driveability too.

None of that matters at the racetrack, however, where the Panigale shines. At just 428 pounds with a full tank, it's the lightest here by a bunch and the easiest to turn, with the quickest transitions from side to side aided by those wide clip-ons. There is no “frame” on the Panigale—front and rear subframes, as well as the swingarm, bolt directly to the engine—and the resultant arrangement is remarkably light. It's coupled with firmly sprung Öhlins electronic suspension that can make the Panigale feel nervous at casual speeds, but like all Ducati superbikes it feels much happier at speed. With gobs of ground clearance and excellent stability even at very deep lean angles, the Panigale easily cuts corner lines that the bigger, less agile inline-fours struggle to achieve. With its

brick wall-powerful Brembo M50 calipers and three-level race ABS this is the best bike on the brakes too.

In past tests we've complained about the Panigale's tendency to pogo on the rear shock exiting corners. This year Ducati dropped the swingarm pivot 4mm for more stability under acceleration and that helped, though there is still some residual “Ducati pump,” especially when the DTC is activated. The Panigale still fires off corners really well though. Unlike the broadband four-cylinders, the Panigale power profile is comparatively shorter, steeper, and harder to manage, with revs quickly gained and power building right up to the harsh

rev limiter, with no useful over-rev. You feel the Panigale power hit, which is undeniably thrilling, but you also have to shift more and babysit the (hard to read) tach carefully or risk interrupted drives.

Fourth place might seem like a failure for such a heavily revised and sophisticated machine, but better to view this as a natural outcome of Ducati's more race-oriented focus for the 1299. The Panigale is built for the circuit, with all the usual compromises that entails. Depending where you sit along the street-track continuum, this bike might be more or less appealing than our fourth-place ranking suggests. But if you're looking for all-around balanced performance you can actually live with, other bikes here do more for much less than the 1299 Panigale S's account-sapping \$24,995 price.

CLASS OF 2010

July 2010, MC

1. Aprilia RSV4 Factory
2. Ducati 1198S
3. MV Agusta F4
4. BMW S1000RR
5. KTM RC8R

“Foreign Exchange” was the headline for the Class of 2010 story, and our all-European lineup reflected



the rising performance profile of Euro sportbikes at a time when Japan was throttling back in response to a global economic recession.



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GEAR UP
EVERY RIDE



3RD PLACE

BMW S1000RR



STREET



TRACK



TECHNOLOGY

» Let's call BMW's S1000RR Exhibit #2 in the department of "My, how quickly things change." (Kawasaki's Ninja ZX-10R is Exhibit #1.) Another former "Class of" champion (consecutive years, 2012 and '13), the original Bavarian Badass falls this year to the third spot through no fault of its own. It still delivers the same lightning-in-a-bottle combination of eye-watering acceleration, NASA-level e-technology, and coddling civility that have since made it a favorite of stoplight-sprinting street squids and sophisticated supersport-tourers alike. It's just that, alongside vastly more powerful versions of the Aprilia RSV4 and Ducati Panigale and a leaner, meaner, much more sophisticated Yamaha R1, it's harder than ever for the S1000RR to stand out.

Not that BMW hasn't been keeping up—this is essentially an all-new model with significant updates, including the addition of Dynamic Damping Control (DDC) electronic suspension, engine changes

that boost rear-wheel horsepower to 184.6 hp (from just 999cc!), and a host of careful detail changes that cut 8 pounds, even after the addition of DDC. BMW is not standing idly by.

We weren't kidding when we said "supersport-touring." With a low, supportive saddle, a roomy cockpit, high, perfectly angled clip-ons, excellent wind protection, and electronic indulgences including cruise control and even heated grips, the S1000RR was the unanimous choice for a street sled. With a Sport ride mode (one of five available modes when you check the Premium option that adds an IMU to enable lean angle-informed traction control, ABS, and DDC) that tailors power delivery for street situations and a Road suspension setting (one of three available DDC baseline presets)



They don't look different, but BMW's brakes seem to deliver 20 percent more braking force (top). Call us old fashioned, but we prefer this analog tach (above).

CLASS OF 2011

August 2011, MC

1. Aprilia RSV4 Factory
2. BMW S1000RR
3. Kawasaki Ninja ZX-10R
4. Ducati 1198SP

We finally saw some new sportbikes arrive from Japan in the form of the 2011 Kawasaki ZX-10R, so we put that machine to the test against three of Europe's best. Note BMW's S1000RR sneaking up the results—a sign of what's to come.





“[The S1000RR] still delivers the same lightning-in-a-bottle combination of eye-watering acceleration, NASA-level e-technology, and civility.”

that reduces damping rates accordingly, this is a bike few would hesitate to take out for a 500-mile day.

With the ride-mode selector toggled to Slick and DDC set for Track, it's another animal entirely. All 184 ponies arrive unadulterated, with rider aids more permissive than a teenage babysitter with her boyfriend hiding in the closet. Exiting Buttonwillow's flat, second-gear turn one, the S1000RR would assertively spin, slide, and wheelie all at the same time, various electronic controls conspiring with surprising effectiveness rocket you out of the corner with remarkable speed. “S—t gets *real* past 12,000 rpm!” one tester said. Thankfully there's a very effective auto-blipping, up-and-down quickshifter to simplify at least one task.

Even with such capable electronics, all that power can sometimes feel like too much—an extra fraction of a second

on-throttle can feel like another 5 mph at the end of a straight, making it too easy to rush into corners. A good thing, then, that the BMW has powerful brakes, with what feels like 20 percent more stopping force than the other bikes. It was the only bike on which you would regularly feel the ABS activate, and jumping off any of the other bikes it wasn't uncommon to overbrake until you recalibrated your right hand for the BMW's stronger braking hit. How much is too much?

The other overwhelming impression of the S1000RR is size: Sandwiched between the $\frac{7}{8}$ -scale Aprilia and Ducati or ridden alongside the newly slimmed R1, the BMW feels rotund, and dull steering compared to those hyper-agile stablemates makes it feel out of step. Lazier ergos make it hard to get over the front of the bike, and, despite lighter forged wheels included in the Premium kit, it takes more effort to



That small rod parallel to the shock body is a travel sensor, an essential component of the DDC electronic suspension system (top). The catalyst is inside the muffler now, allowing the heavy underchamber to be deleted (above).

hold the S1000RR on-line, especially as speeds rise. The BMW wanted to run wide at the 120-mph exit of Riverside corner and it took real effort—and, occasionally, rolling out of the gas—to negotiate the fast left up to Phil Hill, which other bikes could blitz through flat out. All this conspired to keep the BMW, a lap-time leader in past tests, stuck at third peg in this year's charts.

Despite the downgrade from first to third, BMW's S1000RR remains one of our all-time favorite sportbikes. At \$18,495 as equipped with the Premium Package and Racing Red paint, it's also the best value in this test, offering so much performance, functionality, and features for thousands less than the Yamaha and the two other European bikes.

**CLASS OF
2012**
July 2012, MC

Part I: Japanese bikes
1. Kawasaki Ninja ZX-10R
2. Suzuki GSX-R1000
3. Yamaha YZF-R1
4. Honda CBR1000RR

Acknowledging the inevitable, we separated the Class of 2012 into two tests. Part I locked the Big Four's big four in an all-Japanese “Shogun Showdown” that was won by Kawasaki. The bigger surprise was Suzuki's all-analog GSX-R1000 beating out the traction-controlled Yamaha R1.



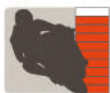


2ND PLACE

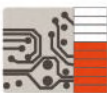
APRILIA RSV4 RF



STREET



TRACK



TECHNOLOGY

» The undisputed lap-time leader the last time we gathered all the open-class Euro bikes in 2013, the lively, lusty RSV4 is back and truly better than ever, thanks to a thorough update for the 2015 model year (though the new RSV4 is technically tagged a 2016 model in the US). It hardly looks different in the flesh, but this is an entirely new bike with a 21.5-hp increase over that last version we dyno'd in 2013. The improvement is dramatic.

Forget the devil. This time, the development is all in the details. There are no dramatic changes to the 65-degree, 1,000cc V-4 mill, just myriad micro-changes to every internal component—a few millimeters hacked off the intake stacks here or added onto the valve heads there and a few grams shaved from the camshafts or connecting rods—that add up to 175.2 hp and silence old complaints about the RSV4

being underpowered for the class. Best of all, the goosebump-inducing, half-a-V-8 soundtrack remains unchanged.

So much is familiar from the saddle, with the same old roomy cockpit that seems at odds with the compact overall size of the RSV4, even if the new fairing is both wider and taller than before. This makes the bike easier to tuck into at speed and also makes room for higher, wider bars, both improvements for street riding. There most testers gave the RSV4 generally agreeable marks, bothered only by some sharp edges on the seat and persistent engine heat.

For this test we ordered the RF version (formerly called the Factory) that adds racy “Superpole” graphics, lighter forged wheels, and premium Öhlins suspension, the latter without any dynamic-electronic component so you have to adjust your settings the old fashioned way—with your own two hands—and are left with a single, static setting. First-world problems... That said, many felt the RF offered the best suspension action of this test. There's no comparison for a properly tuned Öhlins NIX/TTX combination's perfect blend of low-speed damping for the street and high-speed action for the track, and our

CLASS OF 2012

August 2012, MC

Part II: Euro bikes

1. BMW S1000RR
2. Ducati 1199 Panigale S
3. Aprilia RSV4 Factory
4. MV Agusta F4R



Part II saw Europe's best big-bore superbikes go head to head in all their traction-controlled, ABS-enabled, quick-shifter-equipped glory. After a few years of fumbling, BMW's most-improved S1000RR finally took top spot, ahead of the radical new Panigale.

“Everything we loved about the old RSV4 applies here, especially perfect front-rear balance and buttress-like stability even at fairing-dragging lean angles.”

fastest riders actually preferred the analog setup at the track, praising its consistency and predictability.

The racetrack is where the RSV4 RF really came alive. Everything we loved about the old RSV4 applies here, especially perfect front-rear balance and buttress-like stability even at fairing-dragging lean angles and triple-digit speeds. At 460 pounds wet it's 5 pounds lighter than before but still the heaviest bike here, and you sometimes feel that weight in high-speed transitions where the RSV4 is slower to snap to attention. It seldom feels anything less than totally confident, though, with none of the skittishness sometimes displayed by the Ducati and none of the numbness of the BMW.

Power delivery from the new motor is markedly smoother than before. The curves have been backfilled and bolstered, and the old torque step is gone, giving the RSV4 even more predictable and linear power delivery that had pilots wheeling wild-eyed over Phil Hill and confidently charging through Riverside with knee buried at 120 mph. Three power modes let you further fine-tune delivery (though the nomenclature, Track, Race, Street, is confusing), and flawless APRC



Everything on the new RSV4 looks familiar but different, including a fairing that is taller and wider but still retains the unique triclops design. Forged aluminum wheels and (non-electronic) Öhlins suspension account for most of the \$6,350 upcharge for the RF.

electronics that combine to always maintain rapid forward motion increase confidence even more. The menu/submenu format can be difficult to navigate at first (and one tester suggested the readout looked “first-generation Nintendo” beside other bikes’ TFT displays), but we still

love the paddles that let you easily trim TC intervention on the fly. (To be fair, the Panigale and R1 have these as well.)

Last time we criticized Aprilia for being a half-generation behind, and even after this major overhaul that's still somewhat true. Lack of an e-suspension option sacrifices versatility and convenience if not actual performance, and other little details like an up-only quick-shifter—when the BMW and Ducati go clutchless both ways—add to the impression that it's every-so-slightly behind the times. But we can't argue its outright abilities, and, all objective comparisons aside, it's still the subjective top dog for many of our testers, as our “off the record” conclusions attest. Not a distant second place by any means.

CLASS OF 2013

September 2013, MC

1. BMW HP4
2. Ducati 1199 Panigale R
3. Aprilia RSV4 Factory
4. Kawasaki Ninja ZX-10R
5. KTM RC8R
6. MV Agusta F4RR

We subtitled this year's comparison “One-Percent Rides,” a nod to our cost-no-object test criteria.

When the dust settled it was the \$24,995 BMW HP4 over the \$29,995 Ducati 1199 Panigale R; the fourth-place ZX-10R ABS was a bargain at \$15,299.





1ST PLACE

YAMAHA YZF-R1M



STREET



TRACK



TECHNOLOGY

» We've been waiting a long time for a new Yamaha R1 and we'll say right from go that this one was more than worth the wait. Our testers' notes tell all: "An absolute joy to ride." "The definition of precision." "Confident from the first corner." "Will make anyone feel like Superman." Praise for this bike was universal and universally exuberant.

This seventh-generation R1 was conceived of differently than previous

models, arising organically from Yamaha's M1 MotoGP program. This race-centric design philosophy is evident in every detail, and it feels closer to race-ready than any Japanese superbike ever before. It feels as taut and trim as the Panigale but with none of the rough edges. Its electronics are as comprehensive and easy to use as the BMW and in some ways—specifically with regard to data acquisition and telemetry—more sophisticated. And it all combines to produce the lowest lap time, 0.2 second ahead of the unflappable Aprilia.

That it does this all with just 164 hp—11 less than the RSV4, 13 less than the Panigale, and 20 less than the S1000RR—says everything about how effectively the R1 gets the job done. The latest evolution

of Yamaha's crossplane inline-four (CP4) with larger bores and bigger valve openings on both sides has the same strong low- and midrange power as before but now with a livelier top end. Its flat, droning exhaust note produced by the irregular firing order predicts exceptionally smooth power delivery that helps the R1 fire off corners better than any other bike here. Unlike other bikes that occasionally snap, pump, or buck under power, the R1 just smoothly slides while still driving forward. It's the best transmission of the bunch, with short throws between gears and creamy clutch action—and an up-only quickshifter—that helps too. And it would only get faster with shorter gearing—this bike goes 99 mph in first (we checked).



The GPS unit (top) for the Communication Control Unit (CCU) comes standard on the R1M and allows the rider to download and analyze ride data. Yamaha's dash (above) is smaller than the Ducati's but is still crammed with information.

“This race-centric design philosophy is evident in every detail, and it feels closer to race-ready than any Japanese superbike ever before.”

We tested the limited-production R1M version that adds Öhlins electronic racing suspension (ERS) and the GPS-enabled, 21-channel Yamaha Telemetry Recording Analysis Controller (Y-TRAC). Öhlins ERS, ostensibly similar to what's on the Panigale S, automatically optimizes suspension damping to make this the most predictably stable bike here, with almost no discernible diving under braking or squatting under power (you can still select fixed suspension settings if you desire, as some testers did at the racetrack). Credit also the IMU-informed traction/wheelie control bolstered by a lateral slide-control system, which never puts a wheel any further out of line than you ask it to. Front-rear linked ABS was the only electro-control any testers criticized on the R1, mostly because, unlike the other systems that are easy to manipulate or even deactivate completely, you can't turn the ABS function off (nor can you change ride modes at-speed).

Yamaha took great pains to shrink everything—even the engine is almost 2 inches narrower. The new R1 feels compact in every way and, at just 444 pounds full of gas, very light, too. The seat is tall—33.9 inches off the ground now—but a relatively close height relationship between the smooth seat and wide

bars makes it easy to move around, and the compact, mass-centralized sensation continues when you're traveling at speed. The YZF-R1 feels more like a race-prepped sportbike than any other here, with quick steering, impressive stability at full lean, an easy ability to change lines midcorner, and a communicative chassis that lets you appreciate all of these traits.

Speaking of bike-to-rider communication, the Y-TRAC system, which provides a comprehensive picture of each lap and allows you to monitor everything from brake pressure, lean angle, throttle opening, TC/ABS/SCS activation, and so much more at any point on the track using a tablet app, is legitimately thrilling to geek out over. This will once and for all end any benchracing shenanigans. “Look right there! I was leaned over at 51 degrees and going 121 mph, with slide control working!”

That you can get MotoGP-like data acquisition on your production bike—plus electronic suspension and the fastest lap times too—for virtually the same price as the Aprilia RSV4 RF was the deciding factor in picking the champion this year. That it's also a functional streetbike is even more compelling. Great work, Yamaha. It looks like Japan is finally back in the superbike game.

CLASS OF 2014

April 2014, MC

1. Triumph Daytona 675R
2. Ducati 899 Panigale
3. Aprilia RSV4 R
4. MV Augusta F3 800

The year 2014 saw the rise of the so-called “Supermid” category: 800(ish)cc bikes claiming to mix the best traits of 600s and literbikes. We tested—and busted—this trend in a four-bike “Supermid Showdown” that saw the Triumph Daytona 675R take an easy win.



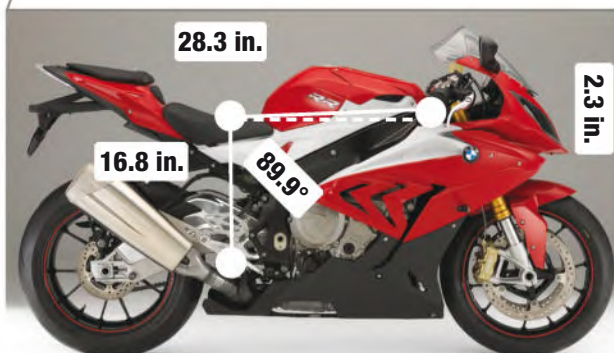


» It was this close the entire time, the competition between Aprilia's awesome RSV4 RF and Yamaha's radically reborn YZF-R1M. Both bikes over-deliver on the superbike promise of arm-stretching acceleration and elbow-dragging agility, but both do so with enough refinement and versatility that you can actually ride either on the street without fear of entering a discomfort-induced road-rage state. They aren't as alike as the near-identical lap times—or identical-to-the-dollar price tags—might suggest. The soulful Aprilia, with its roaring V-4 heart, plays the hot-blooded Latin lover against the Yamaha's more coolly calculating Samurai type, but both hit the right marks whether on a twisty backroad or a demanding race track. The more modern R1M just brings more to the game technologically, giving it a crucial advantage.

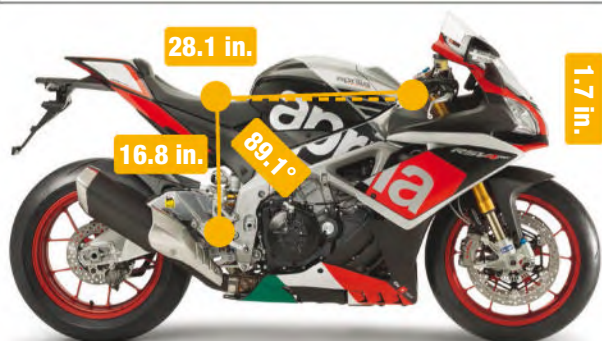
ERGOS

There is remarkably little ergonomic variation among these five bikes. The only real outlier is the R1, with the longest reach to the bars and nearly the most legroom, which might explain why most testers rated that bike easiest to move around on.

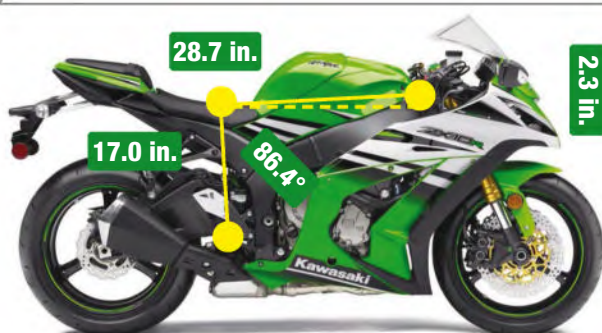
BMW S1000RR



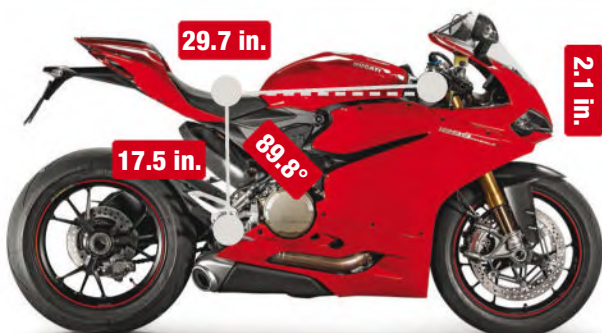
APRILIA RSV4 RF



KAWASAKI ZX-10R



DUCATI 1299 S PANIGALE



YAMAHA YZF-R1M



NEW TRACK READY ALPHA

ALPHA RACE SERIES FOR THE ALL NEW YAMAHA YZF-R1 AND YZF-R1M



SEE OUR LINE OF GENUINE ACCESSORIES FOR R1
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PIRELLI DIABLO SUPERCORSA TIRES

Premium Rubber for Premium Rides

To ensure this brood of premium superbikes was on equal and appropriate footing at the racetrack we fitted each with top-level rubber in the form of Pirelli's Diablo Supercorsa SC (Special Compound) tires. As the spec tire for both World Superbike and World Supersport racing, Pirelli constantly evolves the Supercorsas. The latest batch of updates to these championship-winning buns includes a new tread design for a larger contact patch area at full lean, revised profiles, and updated compounds, among other changes.

Visually identical to the street-oriented dual-compound Supercorsa SPs that come standard on the Aprilia, BMW, and Ducati, the SC features a uniform tread compound in several grades. Fronts come in SC2 (medium) and SC1 (soft), while rears come in SC2, SC1, and, new this year, super-soft SC0.

We selected SC2s front and rear to suit the scorching-hot weather and abrasive surface of Buttonwillow's newly paved surface. The tires performed flawlessly, delivering sharp handling, great straight-line and braking stability, and absolutely incredible edge grip. Given that all our testbikes have TC and

all but one have ABS, we were compelled to explore the limits of traction and we came away unanimously amazed by just how distant the Pirellis' limits are.

In light of the raw horsepower of our test machines we were also impressed with the tires' durability. When we swapped rubber midday most of the rears still had ample tread remaining. (Don't worry. We kept the take-offs for future trackdays!)

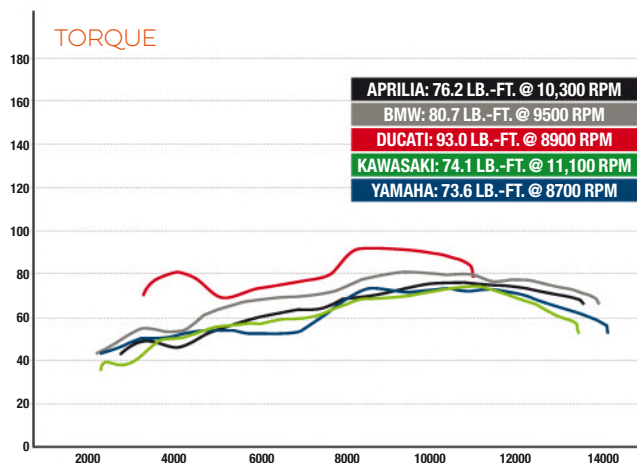
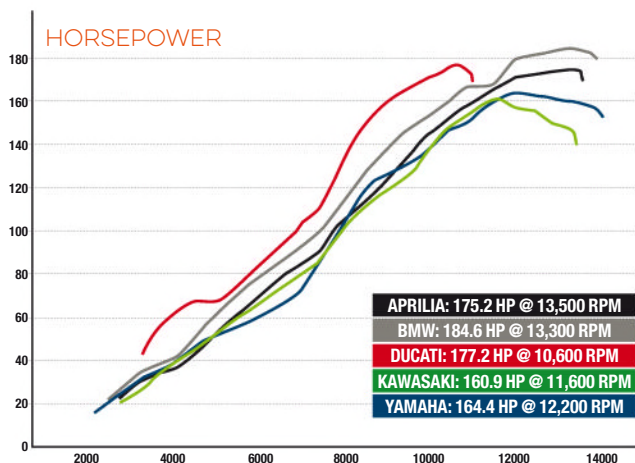
The Supercorsa SCs are incredible tires, proven at the highest level of production road racing and available to the public for \$175 to \$188 for fronts and \$186 to \$256 for rears, in all the common supersport sizes, including the 200/55 worn by all but the Kawasaki. In the Western and Central US, tires can be ordered through CT Racing (ctracetires.com), while the Eastern US and Canada are serviced by Orion Motorsports (orionmotorsports.ca).

—Ari Henning



TECH SPEC

	APRILIA RSV4 RF	BMW S1000RR	DUCATI 1299 PANIGALE S	KAWASAKI NINJA ZX-10R
PRICE	\$21,999	\$18,945	\$24,995	\$14,599
ENGINE	1000cc, liquid-cooled 65° V-4	999cc, liquid-cooled inline-four	1285cc, liquid-cooled 90° V-twin	998cc, liquid-cooled inline-four
BORE X STROKE	78.0 x 52.3mm	80.0 x 49.7mm	116.0 x 60.8mm	76.0 x 55.0mm
COMPRESSION	13.6:1	13.0:1	12.6:1	13.0:1
VALVE TRAIN	DOHC, 16V	DOHC, 16V	DOHC, 8V	DOHC, 16V
FUELING	EFI, ride by wire	EFI, ride by wire	EFI, ride by wire	EFI
CLUTCH	Wet, multi-plate slipper	Wet, multi-plate slipper	Wet, multi-plate slipper	Wet, multi-plate slipper
TRANS/FINAL DRIVE	6-speed/chain	6-speed/chain	6-speed/chain	6-speed/chain
FRAME	Aluminum twin-spar	Aluminum twin-spar	Aluminum monocoque	Aluminum twin-spar
FRONT SUSPENSION	Öhlins 43mm fork adjustable for spring preload, compression and rebound damping; 4.7-in. travel	Sachs 46mm fork adjustable for spring preload with dynamic compression and rebound damping; 4.7-in. travel	Öhlins 43mm fork adjustable for spring preload with dynamic compression and rebound damping; 4.7-in. travel	Showa 43mm fork adjustable for spring preload, compression and rebound damping; 4.7-in. travel
REAR SUSPENSION	Öhlins shock adjustable for spring preload, compression and rebound damping; 5.1-in. travel	Sachs shock adjustable for spring preload with dynamic compression and rebound damping; 4.7-in. travel	Öhlins shock adjustable for spring preload with dynamic compression and rebound damping; 5.1-in. travel	Showa shock adjustable for spring preload, compression and rebound damping; 5.5-in. travel
FRONT BRAKE	Brembo four-piston calipers, 320mm discs with ABS	Brembo four-piston calipers, 320mm discs with ABS	Brembo four-piston calipers, 330mm discs with ABS	Tokico four-piston calipers, 310mm discs
REAR BRAKE	Brembo one-piston caliper, 220mm disc with ABS	Brembo one-piston caliper, 220mm disc with ABS	Brembo two-piston caliper, 245mm disc with ABS	Tokico one-piston caliper, 220 disc
FRONT TIRE	120/70-ZR17 Pirelli Diablo Supercorsa SP	120/70-ZR17 Pirelli Diablo Supercorsa SP	120/70-ZR17 Pirelli Diablo Supercorsa SP	120/70-ZR17 Bridgestone Battlax BT016
REAR TIRE	200/55-ZR17 Pirelli Diablo Supercorsa SP	200/55-ZR17 Pirelli Diablo Supercorsa SP	200/55-ZR17 Pirelli Diablo Supercorsa SP	190/55-ZR17 Bridgestone Battlax BT016
RAKE/TRAIL	25.0°/4.1 in.	23.5°/3.8 in.	24.0°/3.8 in.	25.0°/4.2 in.
SEAT HEIGHT	33.0 in.	32.1 in.	32.7 in.	32.0 in.
WHEELBASE	56.5 in.	56.1 in.	56.6 in.	56.1 in.
MEASURED WEIGHT	460/431 lb. (tank full/empty)	451/423 lb. (tank full/empty)	428/401 lb. (tank full/empty)	442/415 lb. (tank full/empty)
FUEL CAPACITY	4.9 gal.	4.6 gal.	4.5 gal.	4.5 gal.
FUEL ECONOMY	40/31/34 mpg (high/low/average)	44/29/37 mpg (high/low/average)	40/27/35 mpg (high/low/average)	44/32/39 mpg (high/low/average)
RANGE	167 mi. (including reserve)	170 mi. (including reserve)	158 mi. (including reserve)	176 mi. (including reserve)
CORRECTED ¼-MILE	10.39 sec. @ 146.9 mph	10.16 sec. @ 149.9 mph	10.35 sec. @ 144.8 mph	10.54 sec. @ 143.2 mph
TOP-GEAR ROLL ON, 60-80 MPH	3.2 sec.	2.5 sec.	2.4 sec.	3.3 sec.
WARRANTY	24 mo., unlimited mi.	36 mo., 36,000 mi.	24 mo., unlimited mi.	12 mo., unlimited mi.
MORE INFO AT	apriliausa.com	bmwmotorcycles.com	ducati.com	kawasaki.com



The V-twin Ducati dominates the dyno charts due to its almost-300cc advantage over the 1,000cc fours, but that doesn't necessarily translate to faster lap times because the steeper, narrower power-band is harder to mediate.

YAMAHA YZF-R1M

\$21,990
998cc, liquid-cooled inline-four
79.0 x 50.9mm
13.0:1
DOHC, 16V
EFI, ride by wire
Wet, multi-plate slipper
6-speed/chain
Aluminum twin-spar
Öhlins 43mm fork adjustable for spring preload with dynamic compression and rebound damping; 4.7-in. travel
Öhlins shock adjustable for spring preload with dynamic compression and rebound damping; 4.7-in. travel
Advics four-piston calipers, 320mm discs with ABS
Nissin one-piston caliper, 220mm disc with ABS
120/70-ZR17 Bridgestone Battlax RS10
200/55-ZR17 Bridgestone Battlax RS10
24.0°/4.0 in.
33.9 in.
55.3 in.
444/417 lb. (tank full/empty)
4.5 gal.
36/26/30 mpg (high/low/average)
135 mi. (including reserve)
10.51 sec. @ 145.7 mph
3.2 sec.
12 mo., unlimited mi.
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OFF THE RECORD



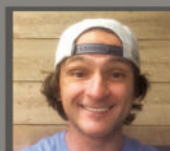
ALEX DUNSTAN
GUEST TESTER
AGE: 36
HEIGHT: 6'1"
WEIGHT: 185 lb.
INSEAM: 32 in.

There's no denying Yamaha hit it out of the park with the new R1, and the pages of praise heaped upon it are all well deserved. After an underwhelming previous generation R1, it's nice to see the boys in blue come out swinging, and it rightfully deserves the number-one plate. That said I'm awarding the RSV4 RF my personal "Best in Class." Riding the RF is a visceral experience that extends from your ears, through your throttle hand, and out the footpegs as the rear wheel spins and the front tire claws toward the sky. Less of a ballet and more of a salsa, the V-4 talks back to you and lets you know exactly what it wants. With my best RF lap time coming in a full two seconds faster than the Yamaha (which was second quickest for me), it was clearly the dance partner I jelled with both on and off the track. Cue the music. I'm ready to go for another ride!



ARI HENNING
ROAD TEST EDITOR
AGE: 30
HEIGHT: 5'10"
WEIGHT: 175 lb.
INSEAM: 33 in.

For me this test really boiled down to the R1M versus the RSV4 RF. The R1M is more sophisticated and has made the largest improvement from one generation to the next and fully deserves the "Class of" crown. I'd recommend the Yamaha to anyone who intends to stack on trackdays or just wants to be on the cutting edge. But for my money, Aprilia's RSV4 RF is the complete superbike package. Even before Aprilia stuffed another 20 (20!) hp into it the RSV4 already held my heart. This new bike is nearly as fast as the R1M on the track and offers more thrills on the street, mainly because of that shuddering, roaring V-4. That motor is simply mesmerizing, and while the R1's engine is quite characterful, nothing competes with the sound and feel of four cylinders splayed at 65 degrees. Ride one and you'll understand.



CHRIS SIEBENHAAR
GUEST TESTER
AGE: 30
HEIGHT: 5'10"
WEIGHT: 175 lb.
INSEAM: 31 in.

I wanted the RSV4 to be the bike for me—I really did—but I always felt a bit like a stranger when I got on it. The RSV4 brought a smile to my face with every twist of the throttle, but the BFF connection just wasn't there for me. The ZX-10R really surprised me with how well it competed against much more expensive bikes. It's not necessarily great, but it does everything really well, and while it's not the best looking bike to me, it has a great personality. With its performance I could get over that. The R1M would be my unanimous favorite if the bike would allow me to be more in control. This bike will no doubt make for faster riders, but with all the electronic systems in play, it might not make better riders. It has the ability to cover for so many rider errors, which may or may not be a good thing.



ZACK COURTS
ASSOCIATE EDITOR
AGE: 31
HEIGHT: 6'4"
WEIGHT: 185 lb.
INSEAM: 34 in.

As hard as we try to be impartial, you probably already knew which bike you wanted after skimming through the photos. Objective data about superbikes is kind of like nutrition information at a fast-food joint: Sure, there might be options that are better for me, but this big, greasy 180-hp superbike with cheese is what I really want. If a 1299 Panigale is all that will make you happy, you won't care about the grabby clutch or if your thighs get seared by exhaust heat. It has no frame! It's gorgeous and different! Besides, how many adolescent bedroom walls are coated with photos of BMWs? Ironically, my guilty cheeseburger is the S1000RR. Maybe all of this "objectivity" crap is getting to me, but the second-cheapest bike has the best amenities and the most horsepower? Yeah, I'll take that one, thanks. And throw in a poster.

WORDS: Mitch Boehm

PHOTOS: Rich Cox, Gary Yasaki, *Moto Retro Illustrated*

TURNING POINT

Honda Blew Minds With the V45 Interceptor—and Sportbikes Would Never Be the Same Again

It all happened very quickly. It was autumn 1980, and Yamaha had just launched a load of all-new '81 spec bikes, including its Virago—Japan's very first V-twin custom. The Virago's appearance at Yamaha's annual dealer meeting broke an unspoken (at least to outsiders) agreement among the Japanese manufacturers to *not* build a V-twin custom. But there was an added bit of controversy: During the announcement, Yamaha's president reported that Yamaha had not only taken over the number-one sales position in Europe (factually true), but it would shortly do so in the US as well. *Whoa!*

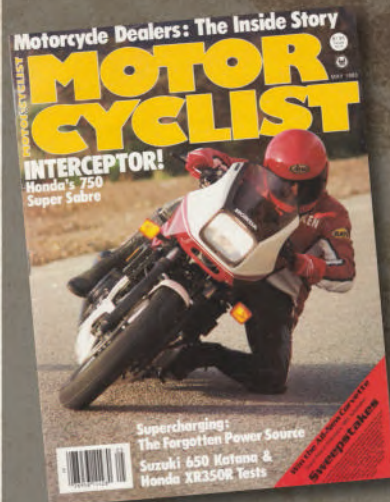
As America's perennial motorcycle sales leader, Honda was both shocked

and embarrassed by this bold claim, and feelings at Honda HQ in Tokyo and the R&D works at Asaka quickly turned ugly; calling out a competitor publicly is patently *un-Japanese*. But those in the know at Honda and elsewhere realized that the company had gone a bit soft in the two-wheeled sector during the late 1970s as it concentrated on cars. This very public loss of face made upper management, including Soichiro Honda himself, not at all happy, and the Big Boss, although no longer involved in day-to-day management, had a word with Shoichiro Irimajiri, the father of Honda's exotic GP racers of the 1960s and, more recently, the 24-valve CBX.

Iri quickly put a development team

together and within two months had a plan for several all-new V-twins for '82 and '83—customs, standards, and sportier bikes. These were shown in sketch form to various R&D teams around the world, and soon all agreed to move ahead. But only weeks later the teams got a stunning message from Japan: The V-twins had been scrapped, and a new direction would soon be announced. The guts of that new plan? An entirely new line of V-4s, one of which would be a pure racer replica.

"We were shocked," American Honda Product Planning Manager Jon Row remembers. "People at the highest levels decided that V-twins, no matter how innovative and stylish, would be seen



THROWBACK



The first Interceptor made the cover of every major motorcycle magazine, ours included. Brochures of the period emphasized the Interceptor's sporting potential.



as just matching or countering Yamaha. And that was *not* acceptable. Our product-planning group, Bob Doornbos, myself, and Dirk Vandenberg, were amazed when they announced the V-4s. We simply didn't believe they could be designed and built in a year's time. But then R&D told us that Honda management had informed the unions that a state of war existed with Yamaha and that there would be concessions regarding overtime, et cetera, to make it happen."

It was as much a matter of pride as a business decision. "The company very much wanted to distinguish itself at that point," Row says, "and V-4s were to be Honda's thing. They were expensive and much more difficult to produce. But

Honda felt up the task. It was almost a challenge: 'Think we can't do it? Watch *this!*' It was right up their alley."

Honda's new V-4-powered lineup would begin with the Magna and Sabre models, introduced for 1982. They were shockingly advanced, featuring all-new, liquid-cooled V-4 engines, and they'd be drawn, designed, prototyped, and built in just a year—an unheard of thing when new bikes typically took 18 to 24 months to morph from sketch to production. And while the bikes were expected to be popular and sell well, it was the sportbike planned for 1983 that would best exemplify Honda's newfound engineering dominance, just as the CBX had attempted—and only partially

succeeded—to do a few years earlier.

Isao Yamanaka, large project leader (LPL) for the V-4 project (and who spearheaded the CB750F and CB1100R projects earlier) remembers those years well. "We had to keep the number-one position," he says, "so everyone worked extra hard. We chose the V-4 for its character and originality, as other manufacturers were building inline engines. We wanted to be different." The order of the projects was determined at the outset. "We began with the Magna and Sabre," he adds, "because we felt the more general and cruiser style was more important to sales in the US market at the time."

The sportbike, internally known as the RC15, was eventually called the V45 Interceptor. "For the Interceptor," Yamanaka says, "our goals were to build the best-performing sportbike available anywhere, which is why we used so much racing technology: perimeter

ROOTS



Honda's V-4 revolution began with the V45 Sabre standard in 1982 (below right), followed by the V45 Interceptor sportbike the next year. In 1984 the Interceptor line grew by two when Honda added a 1,000cc version (above left) and a 500cc version (above right).

frame, liquid-cooled V-4, 16-inch front wheel, et cetera," Yamanaka doesn't mention Honda's brutally fast, V-4-powered, liquid-cooled, and spar-framed FWS Formula One racebike or the roots of Honda's foray into multi-cylinder vees—the oval-piston NR500 of '79 to '82—and its legendary engineering father, Takeo Fukui. But they absolutely affected how the Interceptor concept was approached by engineers.

American Honda's Mike Spencer got involved with the Interceptor project immediately after joining Honda's product-testing team in early 1982 after his AMA Superbike career ended. "I first saw the Interceptor during my initial trip to Japan," the ex-Honda Superbike pilot says. "We tested V45 prototypes in two guises, one with a small cockpit fairing and another with the half-fairing the bike ended up with. There were big discussions about which fairing to use. Quarter fairings were big at the time, Kawasaki's GPzs and Suzuki's GS1000S being the best examples. Some felt the larger fairing was too extreme for the day. Others felt strongly [the larger fairing] was the coming thing and that buyers would embrace the racier look. In the end they picked the right one. Much [of the

decision] had to do with function. The handling of the half-fairing bike was night-and-day better than the cockpit-fairing version. Whether it was extra stability up front, or extra weight, or aerodynamics, it clearly made a big difference at speed."

Appearances are one thing, but Honda needed the new V-4 sportbike to have a great engine, one to make fans forget about Honda's iconic inline-fours. "The goal for the engine was twofold," Spencer adds. "Make more power than any other 750, and make it more usable too. I didn't care for the drone of the 360-degree crank layout; the 180-degree setup on the VFRs had a much sweeter sound. But the [V45] was so much better than anything else at the time." That "drone" was the result of Honda's decision to have the pistons in each bank rise and fall together. Think of this layout as a pair of 90-degree V-twins joined side by side. This crank orientation partially simplified intake and exhaust tuning, though when Honda developed the VFR (introduced in '86) and power was the main goal, it changed to a 180-degree crank design and the now-mythical geared cam drive.



Honda would not just break new ground on the engine side, but it would do so throughout the chassis. Again, Spencer: "The 16-inch front wheel, which we'd used on our Superbikes in '82, was like power steering. Nineteens and 18s couldn't compete functionally or aesthetically. Having a 16 made the bike look so serious. The Sabres and Magnas had some handling challenges during development, but the Interceptor basically had none. They were night and day. The perimeter frame wrapped around the narrow engine and was as light as anything at the time. It was steel, yeah, but a good design. The Pro-Link suspension, the anti-dive fork... There was a ton of technology on that thing. There wasn't tons to do on the development side either. They got it right early on, and we just refined it."

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- » Always wear appropriate protective gear and never ride without a helmet.
- » Riding shown performed by professional rider on closed road.

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Photo: R. Schell

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ROOTS

After years of primarily alphanumeric bike names, the Interceptor moniker was a bit of a change. "I came up with it," Row says, "as I'd always loved it after hearing gas pump jockeys talk about Ford's police cars with 'Interceptor' engines in the '60s. Kawasaki had an Interceptor snowmobile at one point, but when they got out of snowmobiles [the name] became available and we grabbed it. I had become American Honda's 'name guy' in those days and recommended using a cubic-inch designation to further distinguish the V-4s—thus the 'V45' thing."

The Interceptor debuted in late '82 at Honda's dealer meeting, and although it created a buzz, response was tempered somewhat by the crush of all-new bikes announced that evening. "1983 was the year of the V65 Magna, and it sort of stole the show," Row says. "Remember, '83 was the heroin high point for new model releases, and dealers were like junkies. I doubt most were able to fathom the significance of the Interceptor since

there were so many other new models diverting their attention—16 all-new bikes and 56 in the lineup total! The Interceptor and big-bore Magna, CB1100F, 750 and 500 Shadows, 650 Turbo, GL650 Interstate, new Nighthawk 650 and 550s, V-twin Ascot, XR350, more new CRs, upgraded ATVs, and more... It was unreal." Yamaha had very definitely awoken a sleeping giant.


If dealers lacked some enthusiasm for the Interceptor, sportbike-loving magazine editors more than made up for the deficit, featuring it on their winter-edition covers and again in early summer editions once testbikes arrived. The road test reports were hugely positive, with staffers writing glowingly of the VF's technical credentials and highly functional abilities.

"The Interceptor can do it all," *Cycle* wrote in its May 1983 issue. "As a sport bike it's nearly perfect—always there, more than ready, anticipating your every move. When it's time for hard charging

the VF750F excels...But [the Interceptor] is not a narrow purpose machine...the riding position is one of the best available, vibration is well controlled, and a wide range of suspension adjustability allows for a surprisingly comfortable freeway or sporting ride."

Motorcyclist and *Cycle Guide* proclaimed the Interceptor the Motorcycle of the Year, with *Cycle Guide* actually chroming an example for its cover photo. And the VF won *Cycle World's* 750-class shootout. It was the quickest, fastest, and most powerful of the 750s. In our June 1983 issue, we pitted it against the then-new Suzuki GS750ES and the Kawasaki GPz750, still an air-cooled, two-valve engine. The Honda put down an 11.69-second/114.5-mph run, beating the 27-pound-lighter Suzuki by a mere six-hundredths of a second but the aging Kawasaki by a heady six-tenths. We said, "The Interceptor is powered by the best 750cc street engine ever built."

"It's not hard to argue that the V45 marked a critical turning point in sportbike development."



With its perimeter frame, liquid-cooled V-4 engine, 16-inch front wheel, anti-dive fork, and Pro-Link rear suspension, the Interceptor was the most sophisticated sportbike on the market.



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ROOTS

“The Interceptor is powered by the best 750cc street engine ever built.”
—*Motorcyclist*, 1983

Not all was hunky-dory, however. The VF was, at 550 pounds full of fuel, some 20 pounds heavier than Kawasaki's GPz750 and nearly 30 more than Suzuki's GS750. It also delivered a somewhat vague, disconnected feel during aggressive riding. But the biggest problem, and one that nearly beheaded the entire V-4 project, was premature camshaft wear brought on by mismatched cam-bearing surfaces and tolerances exacerbated by not enough oil flow to the cam boxes. The problem affected Sabres and Magnas at first, and Honda wasn't able to fix the problem before Interceptors began rolling off the lines. Things were especially bad in Europe, where bikes are typically ridden much more often—and at higher speeds for longer periods—than in the US.

Despite all this, the Interceptor sold out quickly on a wholesale level and performed extremely well in showrooms. A huge print and TV advertising budget helped, as did racing, with Freddie Spencer, Mike Baldwin, and David Aldana sweeping the top three spots at Daytona in that year's opening AMA Superbike event. HRC-prepped V45s scored more victories during the '83 season. And while Wayne Rainey and Rob Muzzy grabbed the '83 Superbike title on a well-developed air-cooled GPz750, the Interceptor-based Superbikes were the center of attention in the paddock.

Interceptor momentum carried into '84 with 500 and 1,000cc versions, both of which helped expand Honda's presence in the sportbike market. But Honda wouldn't have the high-tech sportbike playground to itself for long. Kawasaki introduced the Ninja 900 in '84, Yamaha dropped the five-valve FZ750 bomb in '85, as Suzuki unleashed the GSX-R750 into Europe and Asia that year. (America finally received the GSX-R in '86, along



The V45's V-4 was quite different from the Sabre's, including chain drive and five speeds; it was also tipped rearward slightly.

with the fearsome GSX-R1100.) Honda responded with the aluminum-framed VFR750 in '86, but by then the momentum had started to shift. Not until the 1993 CBR900RR would Honda again build the hardest-hitting supersport in the land.

Still, Honda got there first. First with perimeter frames, first with liquid-cooling, and first with 16-inch front wheels—and all in the same year. It's not hard to argue that the V45 marked a critical turning point in sportbike development. Previously, sportbikes were slightly updated versions of street

standards—truly, a GPz was not a lot different than a run-of-the-mill KZ, a concept that held for all the Japanese manufacturers. But the V45 was different from the Sabre in concept and execution, in a thousand ways big and small, and in doing so it not only showed Honda's engineering might but without question helped usher in what would be three decades of intense supersport development among the Japanese manufacturers. A war started by Yamaha but quickly escalated by an emboldened Honda. Very, very quickly.



Although Kawasaki won the 1983 AMA Superbike title with Wayne Rainey, Honda won more races. (That's Kawi-mounted Wes Cooley, 34, leading Honda's Mike Baldwin, 43, above.) Honda riders Baldwin, Freddie Spencer, and David Aldana (left to right) filled the podium at Daytona that year.



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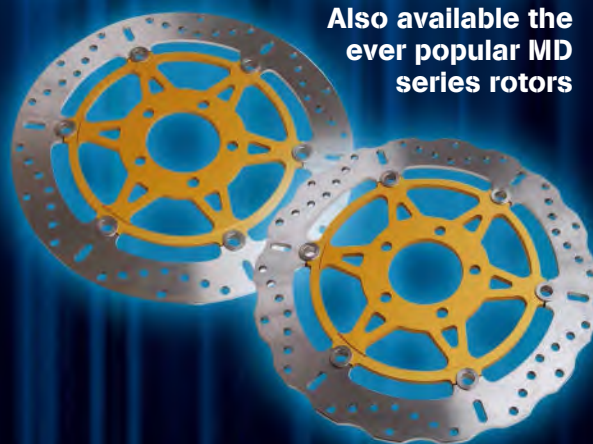
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Skirting Trinity Lake (main image); One of the few water crossings you'll find on the IDBDR (above); Telling tales around the fire at Poet Creek Campground (left).

A 1,300-Mile Off-Road Adventure In The Real **Wild West**

WORDS: Justin Bradshaw
PHOTOS: Jon Beck

We all know Idaho grows plenty of potatoes, but you won't see a single spud patch along the newly plotted Idaho Backcountry Discovery Route, an all-off-road course across The Gem State designed especially for dual-sport and ADV travel. This is the Idaho you learned about in history class—a place ruled not so long ago by gunslingers and a place where grizzlies and wolves still have plenty of space to wander free. The frontier spirit is strong in Idaho, and you won't take that for granted if you ride a motorcycle through the heart of it.

It's not just the endless wilderness that makes Idaho feel this way. Tiny towns that dot the backcountry seem equally lost in time—and not in a bad way. Aside from being surviving examples of the early American pioneer dream, these outposts are perfect places to supply motorcycle travelers. In fact, without these outposts, journeys like this would not be possible; supporting these rural businesses is a strategic mission of the BDR organization, a Seattle-based non-profit entering its fifth season of supplying adventurous motorcyclists with the resources—including GPS tracks, maps, and videos—to cross a state using as little pavement as possible.

This latest BDR segment follows previous projects in Arizona, Utah, Washington, and Colorado and now makes possible an almost-all-dirt route from the Mexican to the Canadian border following some of the best adventure-ready roads in the country. The dedicated, all-volunteer BDR team spent more than a year scouting and piecing together the proposed passage through Idaho. With film crew in tow, the lead expedition spent nearly two weeks verifying the proposed route and putting the finishing touches on what they claim is the wildest BDR yet.

The IDBDR actually begins in Nevada, in the small village of Jarbidge, tucked away in a narrow canyon just south of the Idaho border. Jarbidge



“Forget about cell service or checking your email. Set your auto-reply and turn off the phone; it’s useless out here.”



Countless wildflowers blanket the route up to Trinity Mountain Lookout (above); Crossing the Salmon River on the picturesque Manning Bridge (left); The riding in Idaho isn’t particularly challenging, but it’s never hard to find beautiful places to have some fun (right).



claims to be home to a giant cannibal named Tsawhawbits (tuh-saw-haw-bits), though the few locals who live here don’t seem to worry about him too much. They go about their days supplying visitors with warm meals and cold beers in between taking care of the original buildings along the narrow dirt main street. The jailhouse, for example, still has the original desk and chairs used to book outlaws like Ben Kuhl, who supposedly pulled the last stagecoach robbery in the United States just down the canyon back in 1916.

Heading north begins a 1,300-mile journey that ends, fittingly, under the stars and stripes waving at Port Hill along the Idaho/Canada border. Given our filming and photography obligations and the demands of traveling with a large-ish group of eight riders, it took our scouting party 13 days to complete this journey. You could do it faster, but that’s not recommended if you really want to soak in everything Idaho’s backcountry has to offer.

The Idaho route is probably the least technical of all the BDRs, following mostly smooth forest service roads through dense

trees and mountainous terrain—but that’s not to say it is without challenges. We were reminded on our first day riding that even tame gravel roads present risks, when one rider crashed on a gradual corner along a smooth dirt road. It was a low-speed high-side, and with the traction control turned off on his KTM 1190R there was apparently little he could do to save it. It took the better part of a day—and a helicopter—to extract him from the backcountry.

Risky business aside, the journey across Idaho is a spectacular one. After crossing the Snake River at Glenns Ferry along Interstate 84 in the southern part of the state, we began a long trek through a perplexing web of dirt roads, proving that a trusty GPS device as well as a good physical map like the one that Butler Maps makes for the BDRs are both essential for not getting lost.

Despite time spent building a helicopter-landing pad, we still managed to ride 200 miles on day one. We also lucked out on a prime lakeside camp spot along Trinity Lake straight east of Boise. With a pannier full of flank steak and tortillas

we were able to make a perfect meal for reflecting on the day’s experience. Fireside benchracing with friends is one of the best parts of backcountry motorcycle travel.

North from Trinity Lake the real flavor of Idaho begins to emerge. Remote only begins to describe it. Small villages like Yellow Pine, Warren, and Burgdorf Hot Springs do very little to pull you from a sense of being disconnected from the rest of the world. Forget about cell service or checking email. (Yes!) Set your auto-reply and turn off the phone; it’s worthless out here. Which is totally fine—who needs any distractions when cold whiskey and blazing hot springs await you at the end of a day’s ride?

The IDBDR skirts two of the largest intact wilderness areas in the country, the Frank Church—River of No Return and Selway-Bitterroot Wilderness. These massive expanses of land are not accessible to motorized vehicles, which limits options for riding through the midsection of the state. To address this, the IDBDR route incorporates the famous Magruder Corridor. This unimaginably beautiful, single-lane dirt road cuts across Idaho



(Clockwise from top left): Time to stop and check the Butler map in Yellow Pine; riverways criss-cross the entirety of the IDBDR; most of the route is reasonably maintained gravel roads accessible to any ADV; camping is cozy at Trinity Lake.

toward Montana through an undeveloped area of land twice as large as Delaware and Rhode Island combined. Officially built in the 1930s by the Civilian Conservation Corps, the basic path was used long before that by folks like Lloyd Magruder, who was famously murdered along the route in 1863. His assailants later met their fate by the noose in what was the first legal hanging in the Idaho Territory.

"The Magruder" adds roughly 120 miles to the route and requires an additional pavement slog through Montana to get back into Idaho, but missing an opportunity to ride one of America's wildest roads would fail a major mission of the BDR group: to expose people to the best places to ride adventure bikes in the United States. Not

to mention, the road back into Idaho—The Lolo Motorway—is equally stunning and arguably more historical.

The Lolo Motorway is a 119-mile dirt road that runs between Lolo, Montana, and Pierce, Idaho, across the Bitterroot Mountains. Like the Magruder to the south, the scenery and sense of isolation is unprecedented. Also like the Magruder, famous pioneers and Native Americans used the route, including Lewis and Clark, who were guided through here by Old Toby the Shoshone on their westward journey in September of 1805. We did not have a Shoshone guide and luckily did not battle snow drifts like they did, but we were fortunate enough to be accompanied by a history professor for our day's journey

across the motorway. Taking time to stop at places like the Indian Post Office to get some expert knowledge on the rich history of this area was a welcome change of pace.

From the end of the Lolo Motorway there still remains more than 300 miles of riding through the Idaho panhandle to the Canadian border. It is very similar to the southern part of the state with a few great surprises along the way, including the Blue Cabin between Pierce and Wallace. The Blue Cabin is a private backcountry hut painted—you guessed it—blue. The color is unique in itself, but the real awesomeness is that it's open, free to the public, on a first-come-first-served basis. No key, no lock, no booking ahead. Just show up and hope you did not get beat to the punch. We rolled the dice and arrived late in the evening to discover that nobody had made claim to the cabin before us, a true relief with rain beginning to fall.

This is no Ritz in the woods, but it does at least have running water and a killer vintage wood-fired stove. If you don't mind a little dust, there are four beds with real mattresses to choose from and even a (kind of) hot shower. If you're afraid of ghosts, though, you might feel more comfortable in a tent outside. Our crusty group of travelers was



“The IDBDR is not technical, but it is grueling. Day after day of twisty, dusty dirt roads can still be taxing on the brain, and the miles begin to take their toll.”

more than happy to cook a meal under a roof and watch the sun go down from the deck, with a little nutritional assistance from BDR’s scouting director Rob Watt and his signature “T-Bobby Robby Cucumber Surprise” consisting of sliced cucumber, cream cheese, and shaved ham. Find the recipe—along with a few more fireside favorites—on the BDR website at backcountrydiscoveryroutes.com.

As mentioned, the IDBDR is not technical, but it is grueling. Day after day of twisty, dusty dirt roads can still be taxing on the brain. By now the miles began to take their toll, especially after a fatal puncture in my sleeping pad prevented good sleep since day two. Fortunately, as you

travel up the panhandle, the towns along the way get a bit more modern. Wallace, for example, has managed to get every building on its quaint paved main street on to the National Register of Historic Places. It also managed to throw a few great restaurants into several of them, which is a welcome treat for those weary of freeze-dried road food. From there, more beautiful riding splits the gap between Washington and Montana and skirts the Kootenai National Wildlife Refuge before arriving at the last stop: Port Hill and its friendly Canadian border patrollers.

When it comes to marking the best backcountry routes, nothing beats local knowledge. The IDBDR was



Tunnels are a highlight along Forest Highway #301 (left); Racing up Elk Summit (top); Having fun at a backcountry bus stop (above).

prepared with much assistance from Bill Whitacre, an impressively well-connected Idaho adventure enthusiast, along with Kurt Forget from Black Dog Cycles in Sandpoint, Idaho. Between the two of them, the BDR committee gained incredible insight into the state of Idaho, its land, politics, history, and, most important, the best places to ride. Watching the sun dip low along the Pack River at Kurt’s house just south of the border was a great opportunity to remember why projects like this are so important. It brings riders together and it challenges them, but more importantly it creates opportunity for folks who would otherwise stay at home.

With the plethora of ADV bikes and accessories available on the market, wandering around the backcountry on a big motorcycle has become more accessible than ever, but getting out there is still a big leap for many riders raised on the blacktop. Backcountry Discovery Routes make this leap less intimidating. With five states already completed and New Mexico slated for 2016, BDR has more than enough resources to keep you busy in the Western states for years. Want to support the group and help protect and promote the future of two-wheeled adventure travel in the United States? Become a BDR member—several levels of commitment are available, and you’ll be joining a committed group of enthusiasts who honestly care about access, information, and adventure-motorcycle travel. Then use the BDR resources to start planning your next expedition, and save room in your pannier for some real food too.



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everyone would do it.



TKC 70

For years Continental has been making legendary adventure tires that have no equal. Now we've added the new **TKC 70**, designed to go beyond the limit of all other tires from the concrete jungle to gravel roads. But if you're the type who likes to go on long tours with your big dual-sport bike, our **ContiTrailAttack2** is still your first choice. And when the going gets tough, everyone knows that the **TKC 80** is the way to go. For these classic tires the rider is the only limit. You'll find more information at conti-moto.com

GEAR

WORDS: Ari Henning

KEEP YOUR COOL

Beat The Heat With These Hot-Weather Products



1 REV'IT! HYPERKEWL VEST AND COLLAR

Think of Rev'it!'s Hyperkewl vest as a more sophisticated, longer-lasting version of soaking your T-shirt with water. The \$140 vest's unique fibers store water, allowing it to evaporate slowly and carry away excess body heat. The \$35 Hyperkewl collar is made from the same material as the vest and provides cooling and sun protection for your entire neck. Both products are said to remain effective for up to six hours.

revitusa.com

2 SIDI TOUR AIR BOOTS

Keep your feet cool this summer in the new Tour Air boots from Sidi. These \$230 kicks are made from Sidi's Technomico material and feature large perforated panels for ample airflow around your feet. The boots offer internal shin, heel, ankle, and toe protection and rugged lug-type soles that are perfect for commuting or touring. For sportier kicks, check out the Cobra Air boots, reviewed on page 66.

motonation.com

3 MAXIMA COOLANOL COOLANT

Hot weather is hard on your motorcycle too, so don't forget to give your ride's cooling system some service and replace that old coolant with fresh fluid. Maxima's Coolanol is a ready-to-use 50/50 blend of ethylene-glycol-based antifreeze and deionized water that provides excellent heat transfer and good corrosion protection. Pick up a half-gallon jug for \$17.

maximausa.com

4 TOURMASTER ELEMENT COOLING JACKET

Leather is supremely durable, but it's also mighty hot, especially in its most classic colorway. Tourmaster's new \$400 Element Cooling jacket mitigates excess warmth with a UV-reflective treatment that's said to reduce the jacket's surface temperature by 15 percent compared to standard black leather. The Element jacket also packs CE-approved armor and several vents, plus a zipper to attach to the matching Element Cooling leather pants.

tourmaster.com

5 ARAI CORSAIR X

"Extreme ventilation" is just one of the many benefits of the Corsair X, Arai's new flagship helmet. Increased airflow through the helmet—via revised ducts and diffusers and Arai's unique brow vents—helps keep your head cool in the hottest of conditions, while a stronger shell works with a new EPS liner to keep your cranium protected. The Corsair X also features a new shield system and comfort liner, plus numerous other changes and refinements from the popular Corsair V. Pricing is \$830 for solids and nearly a grand for graphics.

araiamericas.com



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SpeedView® retractable sunscreen
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Retail \$369.95 / 379.95

Yosemite Jacket

Windproof mid-weight nylon
Removable waterproof liner
Adjustable inner panels
Torso and arm venting
CE viscoelastic armor
Pants connectable
Retail \$389.95 / \$404.95



45-110



Water
Proof

Yosemite Pants

Midweight 500 denier nylon
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Cargo pockets front & rear
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Back and thigh venting
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45-110



Water
Proof



SCORPION EXO®

WE LIVE IN OUR PROTECTION

HJC IS-17 HELMET

➡ Let's not overthink this. You're on a budget. You want a good, safe, comfortable helmet. If the number you're thinking of is right around \$200, take heart; there are a lot of lids in that neighborhood.

Of course, to get a helmet down to \$200 requires a few tradeoffs—like, how many features it has and what it's made of. Which is why many of the hats in this price range either carry basic features but are made from more labor-intensive fiberglass or are a molded polycarbonate construction with additional features.

That latter category describes the HJC IS-17, a polycarbonate-shell design with an unexpected number of features. In addition to the *de rigueur* quick-release visor, the IS-17's is prepped for a Pinlock antifog insert (a \$40 option). Surprising for the price, the IS-17 also has an internal flip-down sunshield. Side and chin vents work with front and rear ports to keep the cool air flowing, though we'd call the IS-17 about average for airflow.

A surprisingly plush "moisture wicking" interior features removable crown and cheek pads; the cheek pads come in four different thicknesses that fit all shell sizes. Overall, the IS-17 is amazingly good for a \$200 helmet. It's comfortable, with no pressure points—the fit very slightly favors a long oval head more than a round skull.

➡ HJC IS-17 HELMET

PRICE: \$200

CONTACT: hjchelmets.com

VERDICT: 7/10

Above average quality and features in an inexpensive helmet.



Complaints are pretty minor. We're not in love with the sunshield deployment, which requires you to slide a small pin forward from near the rear of the crown to put the sunshield down and to find a similarly small button to retract it. The IS-17 is also a bit noisier than average. But considering the price, the IS-17's feature set—

along with its very nice fit and finish—make it an excellent choice in the \$200-helmet category. That's what we think, anyway.

—Marc Cook

SIDI COBRA AIR BOOTS

➡ For nearly two years now I've worn Sidi's Cobra Air boots almost daily. They're light, comfortable, protective, and remarkably cool thanks to a thoroughly perforated design.

The Cobra's chassis is made from a proprietary fabric called Technomicro, a composite material that Sidi says is softer, stronger, and lighter than leather. The Air version is perforated, but you can also get your Cobras in a solid design or a Gore-Tex-equipped version. For safety's sake, the Cobras borrow some features from Sidi's more race-oriented boots. The nylon toe sliders are replaceable, the seams are double stitched in "high stress" areas, full heel cups aim to take the shock of a fall, and sturdy nylon plates protect your shins.

I've ridden tens of thousands of miles and walked for countless hours in these boots and never had a hint of discomfort. I should mention that my feet are pretty flat and fairly narrow but fit the true-to-size 44 Cobra Air just right. The insole is removable and replaceable with a more supportive insole if that suits you. Another feature that draws me to the Cobras for daily use is the ease with which you can put them on and take them off—one long zipper and a swath of hook-and-loop material secures each boot in place.

Objectively, the Cobra Air has all of the safety and comfort features you expect from a premium boot, with proven longevity. Yes, these are worn out, but they have served more than their tour. Fit is always a little subjective, but in my opinion these boots are unmatched for comfort. I love them and I intend to replace these with another pair.

—Zack Courts



➡ SIDI COBRA AIR BOOTS

PRICE: \$260

CONTACT: motonation.com

VERDICT: 9/10

Superb footwear that's ideal for hot-weather riding.

ALL OTHER BATTERIES ARE
**GREEN
WITH
ENVY.**



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1/3 THE WEIGHT OF A LEAD ACID BATTERY.

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bikemaster.com





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June 12-14	Barber Motorsports Park	Birmingham, Alabama
June 26-28	Miller Motorsports Park	Tooele, Utah
July 17-19	Mazda Raceway Laguna Seca	Monterey, California
August 7-9	Indianapolis Motor Speedway	Indianapolis, Indiana
September 11-13	New Jersey Motorsports Park	Millville, New Jersey



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5 REASONS YOU SHOULD DO A TRACKDAY AS SOON AS POSSIBLE

- 1 First and foremost, it's fun! We all ride motorcycles for the joy of it, and lapping a track offers the most concentrated dose of excitement you can get.
- 2 Get to know your bike. Whether it's the latest superbike, an ADV, or even a Gold Wing, the consistency of a track will help you explore your bike's limits.
- 3 Get to know your own limits. The same reasoning applies here as above, with the added benefit that there's usually coaching available at trackdays.
- 4 It's safe—or at least a lot safer than riding fast on the street. With no opposing traffic and medical personnel on site, you can give your total attention to riding.
- 5 Expand your circle. Trackdays foster a tight community that extends well beyond the gates of your local racetrack.

MILES THIS MONTH

2611

Maybe we should ride more and wrench less?

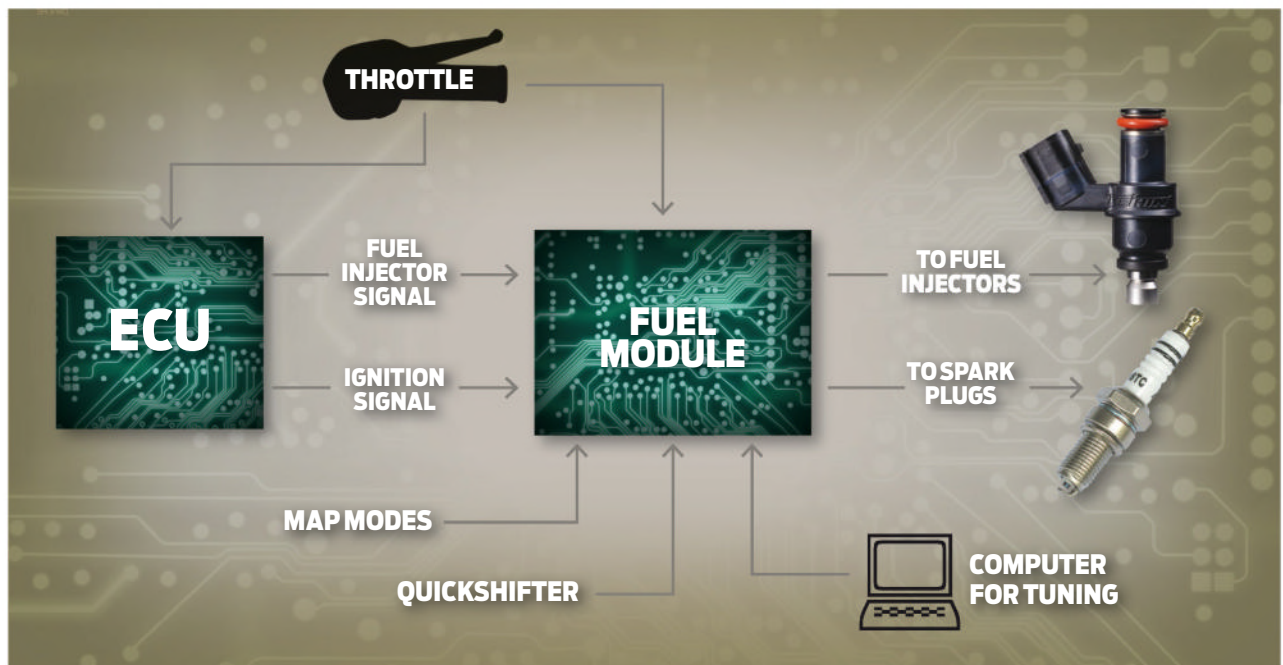


DECODER RING

IMU = Inertial Measurement Unit

The more you know, the smarter you are. That's the theory behind the technology inside an Inertial Measurement Unit, the semi-generic term for a miniature computer mated to multi-axis accelerometers (think solid-state gyroscope). When used with cutting-edge traction control and ride-by-wire engine management, the IMU provides information on the bike's attitude. Is it banking left or right? How much? Is it pitching forward or back? Is there a yaw (tail wagging) component? How fast is it doing any of that? When the IMU knows, the electronics work better.





KAT CONNER

PIGGYBACK RIDE

...And Other Ways To Fine-Tune Your Bike's EFI

When a bike is being developed by the manufacturer, powertrain engineers determine an ideal fueling and ignition scheme so your engine offers peerless performance, optimum power, and, for all we know, the ability to wash your dishes—if it had opposable thumbs. Unfortunately, that's not all those engineers have on their plates. Emissions and noise regulations, which are becoming even more strict worldwide, force compromises in this programming that might make the bike run just a bit less optimally than it could.

Which is why we have products that allow you to retune the fuel and ignition systems to improve performance and accommodate changes such as a different exhaust or air filter. You can either change the coding inside the stock engine computer (ECU) or drop a control module over the stock system. The latter example is often called a piggyback setup, typified by Dynojet's Power Commander.

All digital FI and ignition systems work with what's called a base map. For any given set of variables, the ECU determines when to light the spark plugs and how long to hold the fuel injectors open. The map tells the hard parts what to do and when to do it, informed by a host of inputs that include engine speed, throttle position, actual throttle-plate position (on ride-by-wire bikes), gear position, exhaust

flapper-valve position, ambient temperature, and barometric pressure. There's even more on CAN-Bus bikes, where everything from brake-line pressure to turn-signal condition is in the data stream.

For metering fuel, it's a matter of how long the injectors stay open. The longer they're open, the more fuel goes into the engine. Injectors are either open (allowing fuel to pass) or closed. More fuel with a given throttle-plate opening makes the air/fuel mixture richer and tends to increase power at the expense of fuel economy. Leaner mixtures improve mpg and help give the catalytic converter less work to do burning unused hydrocarbons, which is why many stock bikes are mapped lean.

When you talk to a tuner, you often hear about the air-fuel ratio (AFR), which is simply the relationship of air and fuel delivered, by weight. Typically, four-stroke engines desire a ratio of 12.8:1 to 13.5:1 to produce best power. That's a little more fuel than stoichiometric, a 14.7:1 ratio, which is the theoretical mixture that consumes all the fuel. (Leaner, and the fuel runs out before all the oxygen has been consumed, and vice versa.)

Engines don't always run at an ideal AFR because they don't need to—or, often, because the manufacturer needs another AFR for emissions compliance. When at partial throttle, for example,

modern engines are quite happy to run leaner, often at 14:1 or more. That's fine if you leave your bike totally stock, so the system remains in the balance anticipated by the engineers. But change something as simple as an air filter or as complex as the exhaust system and you might throw things out of whack. Your bike starts to run hot or surge at partial throttle—or worse.

That's where aftermarket solutions come in. Since we're dealing with digital signals to the injectors and coils, it's a simple matter of reforming those signals to get the tuning we want. As such, these overlay boxes splice in between the stock ECU and the fuel injectors (as well as the ignition coils if that's part of the kit) and may connect to other parts of the stock bike, including the throttle-position sensor. The piggyback module watches for the stock ECU to trigger the injectors or coils, intercepts the signals, tweaks them as necessary, and then sends the commands to the hard parts.

See? Simple. "Well, not so fast," chuckles Ammar Bazzaz, head of Bazzaz Performance and at one time part of Mat Mladin's epic Yoshimura superbike team. "There is actually a lot to it," he says, regarding today's more sophisticated bikes. "We have to be very careful to build piggyback systems that not only tune the bike the way we want but that won't

cause the stock ECU to throw codes. It's not as easy as it sounds."

Point taken, and it's not a quick process either. It starts on a dyno with either a wide-band oxygen sensor or an exhaust-gas analyzer. The stock bike is run throughout the operating range to see what the effective AFR is. Then the piggyback box is loaded with skew values, which add or subtract fuel at given combinations of throttle position and rpm. The bike is retested to see where the AFR ends up. These data points are correlated with the torque reading from the dyno to optimize power. When you look at a finished map, you might see a reduction in fuel at, say, 20-percent throttle and 3,500 rpm but added fuel just a few cells away (say, 40-percent throttle and 4,500 rpm) because the overlay map is trying to smooth out the stock programming.

"It's funny," Dynojet's Dusty Schaller says. "We used to tune for maximum power. That's it. But today's riders are looking for better fuel mileage. Where we used to aim for a 13.2 to 13.5:1 AFR for best power, now we're tuning closer to 14:1 to preserve mileage." Bazzaz says his company starts at around 13:1 but will aim for different targets if best torque or drivability suggest it. In truth, any given engine's mixture requirements change across loadings (how much power you're asking it to make) and rpm, so there's no one-size-fits all AFR.

Peak power is one thing, but what about rideability? "We've found that good, stable AFRs throughout the map will usually result in better throttle response," Bazzaz says. "But we will sometimes make small changes to improve response. For ultimate refinement, we'll run a self-mapping module on a closed course." These self-mappers use an O2 sensor in the exhaust and read real-time AFRs as you ride. At the end of your test period, the software will suggest new skew values that you can put in the piggyback box.

The more sophisticated overlay boxes can be used to make very fine adjustments, but there are simpler overlay solutions that don't require a computer or complex maps—these systems increase or decrease fuel over a broad range, which is often good enough for low-performance bikes.

—Marc Cook

HACKING VS. PIGGYBACK

For a long time, the piggyback module was the way to change factory fuel injection and ignition systems. But in the last decade or so, enterprising software engineers have found a way to hack into the stock ECU to change the very map that it operates from. An advantage is that you don't need extra hardware and that, done correctly, there are fewer chances of the ECU showing error codes. (But there are still opportunities.) Some software products also allow you to change throttle response—the way RBW reacts to your inputs—as well as a bunch of other things. For example, they can prevent the ECU from cutting fuel entirely on trailing throttle, an often-used emissions-reducing trick that hurts drivability.

Piggyback has the advantage that it can be removed when you sell the bike, and there's no waiting for your ECU to go out to a programmer and then come back with new coding. The modern overlay systems also allow extensive user programming, which is not possible with a hacked box.



NOT PC

There's a simpler solution to piggyback boxes that need a PC to program, sometimes called "electronic jet kits." (That's Cobra's adaptive PowrPro tuner, right.) With these, you tune more or less by the seat of the pants—though it's still possible to tune on a dyno—and make fueling changes with the press of a button or turn of a dial. No computer necessary. These devices are designed to shift fueling over an rpm range rather than by specific rpm/throttle combinations. Cobra's system watches engine acceleration and changes fuel delivery to keep the engine's responses smooth. Downsides? If there are quirks in the stock map within the shifted ranges, this kind of box cannot smooth them out without significant compromises.



BRIAN MACLEAN

OPEN VS. CLOSED LOOP

Oxygen sensors have arrived on modern bikes. They're needed to meet ever-tighter emissions regulations and make possible something called a closed-loop system, basically this: Under certain riding conditions, the bike's ECU monitors actual fuel/air ratios by measuring the amount of latent oxygen in the exhaust.

When the ECU enters the closed-loop mode, it will skew the injector duration to achieve a desired AFR. If you have added an aftermarket exhaust that influences how the engine runs, the closed-loop settings will help compensate. But only when the bike is in closed-loop mode. (In open loop, the bike runs on the base map only.)

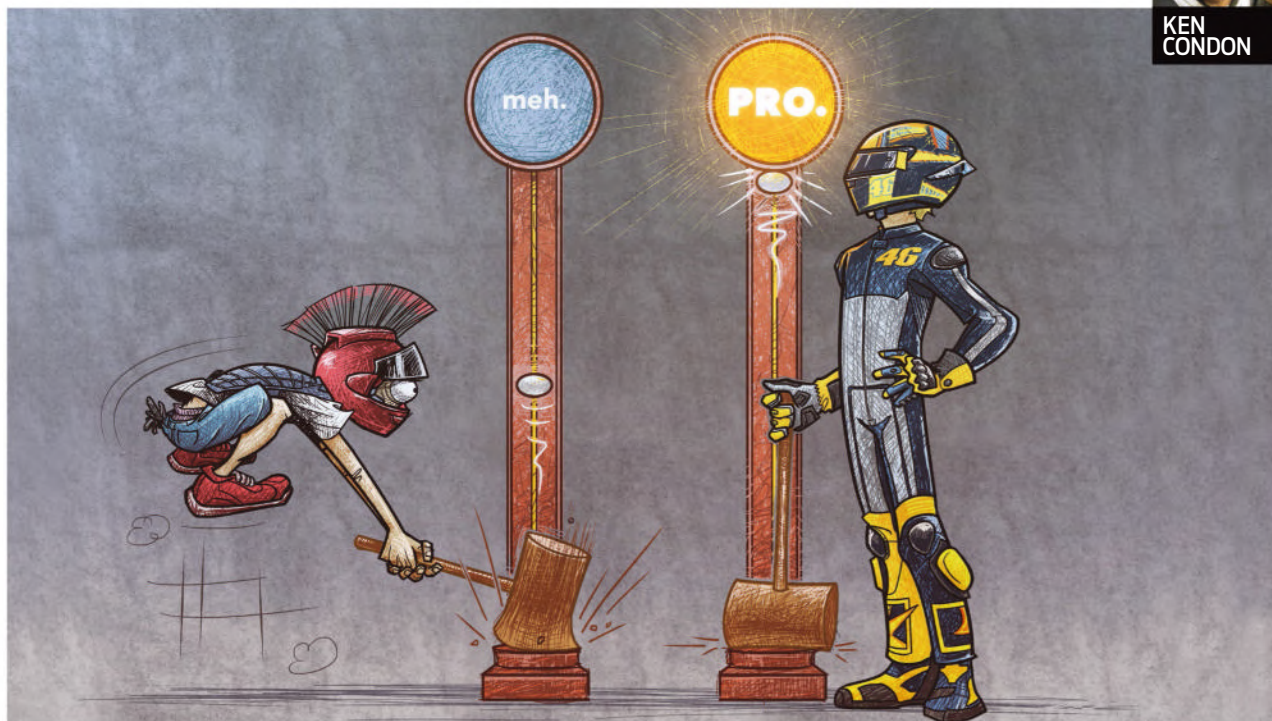
The time spent in closed-loop varies by bike. Dynojet's Dusty Schaller says that modern Harleys are in closed loop about 60 to 70 percent of the time. Honda's CBR250 is in closed loop 80 percent. Other bikes do so in selected regions—only at steady state, below a certain rpm, and in certain gears.

Typically, an overlay fuel box will come with devices that take the O2 sensors off line, basically fooling the stock ECU into thinking they're active when they're not. The idea is to keep the stock ECU from moving the playing field. For example, if you add fuel with an O2 sensor in line, the stock ECU will trim back to achieve the desired AFR; you've then just un-done what the piggyback module was trying to accomplish. Closed loop becomes an open loop.






KEN
CONDON



RICH LEE

REALITY CHECK

 So you think you have this whole riding thing figured out? If you've been riding for many years and your motorcycling résumé contains no serious crashes then maybe you're doing pretty well. But do you really know the limits of your abilities and the amount of risk you are exposed to? Before you answer, consider that measuring limits can be deceptive. While some limits can be clearly defined and accurately measured using precise tools and mathematics, personal limits are usually measured only by the imperfect perceptions of the human brain and emotions. Because personal limits are ambiguous, it's easy to have a completely wrong measure of your abilities.

One reason why riders stink at "limit perception" is because of preconceived ideas about what is normal. Some commuters accept close calls as normal even though there are plenty of motorcyclists who get to and from work with almost zero drama. A lot of sport riders think that if their bike isn't sliding and squirming then they aren't going fast enough, even though the fastest riders become dots in the distance while maintaining complete composure.

Another common area where riders fall flat is accurately judging the limits of the environment. I often see otherwise smart and sensible people willingly push

hard—too hard—in places that even the most skilled riders choose to navigate carefully. These riders can be seen ripping down the road seemingly oblivious to the real danger posed by blind turns and hillcrests, sketchy surfaces, and seemingly innocuous intersections. What makes them think this is okay? Inaccurate perception wins over reality.

One way to help accurately perceive reality is to imagine (or draw) a scale that measures overall ability, including both physical and mental skills. Absolute beginners reside at the bottom, and highly accomplished professional riders (or racers) proudly inhabit the top tier. Where do you think you belong? If you're like most people you will place yourself somewhere just above the middle part of the scale. I have news for you: Humans tend to have an inaccurate and overinflated illusion of superiority when self-assessing their skills, which causes most people to overestimate their abilities.

Serious trouble can be expected if you blindly trust your own estimations of your abilities. Here's an idea: Revisit the riding-skill scale, and this time place yourself 20 percent lower than you did the first time. This new (and likely more accurate) perception won't boost your ego, but it should cause you to reconsider how you ride and prompt you to improve your skills.

Unfortunately, a lot of people get hurt before they discover the extent of their misperceptions. Lucky riders survive and learn from the mishap. Even luckier riders meet someone who intervenes before bad things happen. I've counseled many riders who were bad at recognizing limits. With as much intensity as I can muster, I tell them just how close they are to binning their bike and body. Some riders hang on tight to their belief that they are doing just fine and ignore all warnings.

Thankfully most riders pay attention and consider that perhaps they have a thing or two to learn. Once acknowledgement happens, devoting energy to developing skills suddenly becomes a higher priority. Worthwhile questions come to the surface, such as, "How can I have fun but with less risk?" or, "What tricks reduce the chances of near misses during my commute?" Answers can be found in books and articles, but for the quickest results get some face time with a good instructor who can help you learn at your own pace.

Whether you ride at the racetrack, in the canyons, or on Main Street it is critical to recognize your personal limits. Remember that you don't know what you don't know, and not knowing what you need to know can kill you. Assume you've got a lot to learn (you do), and get to work raising yourself higher on the riding-skill scale.

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BAFFLING BONNEVILLE

Q Last year, I bought a 2010 Triumph Bonneville with only 1,300 miles. The seller lowered the bike an inch by moving the fork legs upward in the triple trees and adding Progressive fork springs and shocks. It came with a Long Haul quick-release 16-inch windshield, which I switched to a Cee Bailey's 20-inch shield. The bike always handled like it was on rails, and the OEM Metzeler ME Z2/Z4 tires hold their line well in the curves.

Recently, I cut the original windshield down to 11.5 inches and replaced the Cee Bailey's with that. After a short ride I noticed handling felt "loose," mainly when decelerating and below 30 mph. The bike now seems to have developed a slight intermittent squirm or wallow when slowing to a stop.

Tire pressures are within spec, but the bike doesn't seem as sure-footed as it used to. I've checked the steering head, swingarm, wheels, and bearings. I jacked up both ends to check the tires for high spots, flat spots, and runout—nothing was amiss. I didn't think the change in windshields could have this effect, but when I took the shield off completely the squirm seemed slightly reduced but still there. Any ideas what could cause this?

Curtis Johnson / Pinson, AL

A Even our resident Bonneville owner is stumped by this one, but there are some things you can try. The windshield is the obvious place to start, since changing it introduced the problem and taking it

off reduced it. You might have pinched, trapped, or otherwise interfered with the normal movement of the cables, the brake hose, or switch wiring when you swapped shields—in effect if not in fact tightening the head bearings.



Double-check your work here. It might help to look at an otherwise stock Bonnie or check the service manual to see that you have the hose/wire routing correct.

A loose feeling on deceleration is most often related to steering-head bearings, brake condition, and/or tires. Any abnormal wear or cupping on the front tire will promote this feeling, as will high spots on the brake rotor. We're inclined to think there's something impinging on the steering, so give the head bearings one more very careful look.

—Jerry Smith

YOUR TURN!

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BACK TO THE AUCTION



It's been more than a year since I first mentioned how dealers use auction houses to move stale inventory and replenish their used stock (*Retail Confidential*, March '14, MC). The auction is a great place for dealers to get a feel for used-bike values, and we use this data to determine the fair market value. The NADA (National Automobile Dealers Association) Appraisal Guide comes out three times a year, but there are auctions every month. Because NADA is slower to react to market values, the auction plays a big part in real-time information.

Now that we have a little history to look back on, we can see the result Harley-Davidson's Project Rushmore, which debuted in August 2013 as '14 models, has had on the value of used Harleys, whole-sale and retail. If you were one of those who waited just a bit to pull the trigger on a Rushmore-class FL, you were probably disappointed with the trade-in value offered for your pre-Rushmore Harley.

There's a good reason for that. Early into the 2014 model year—actually late in 2013—dealers were still generous with trade-in allowances because at that stage it was difficult to gauge exactly what kind

of impact the new models would have on used-bike prices. But demand for Rushmore bikes was massive, and the market became flooded with older Street Glides, Ultra Classics, Ultra Limiteds, and Tri-Glides. As a result, dealers were feeling the pressure associated with taking in inventory and tying up cash flow on bikes and trikes that were now less desirable. This inventory moved through the auction houses, and with values falling, dealers had to be careful to not offer too much on a trade-in to be sure they wouldn't lose money at auction.

By the spring of 2014, dealers weren't referring to the NADA book for trade-in

“Because NADA is slower to react to market values, the auction plays a big part in real-time information.”

values because the auction prices were already dropping. Everyone was sitting on so many 2009–2012 Harleys that it became a *buyer's* market. Early on in this cycle, dealers had no hope of getting anything close to retail for them, so we became gun-shy about taking any more in trade unless the price was right. *Very right.* Unfortunately, customers were not happy with the deals they were getting, and new-bike sales were lost as a result.

Harleys have been known to withstand depreciation better than other brands, and I still believe this to be true. Anytime you make big improvements to specific models you have this ripple effect. We experienced the same thing when the 2009 FL-series touring bikes received a major chassis overhaul along with a host of other changes. Same deal in 2007 when Harley brought out the 96-inch engine and six-speed transmission. As time passes and the dust settles the market will stabilize—and it will this time, too, at least until Harley does something else radical and we see a glut of Rushmore bikes traded in.

Jeff Maddox is the sales manager for a multiline dealership in the Midwest. Questions for him? Email mcmall@bonniercorp.com.



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LUBE YOUR CABLES

 If your clutch or throttle feels sticky or has inconsistent operation, or you ride in the rain a lot, or just have a lot of miles on your bike, it's likely time to give your control cables some TLC. Read on to learn how.



Parody alert: Don't lubricate your cables this way, unless you want to make a mess.



1 You can service the cables while they're installed on the bike, but removing the parts will make the task easier. Take a photo to confirm routing and then remove the cables and inspect them for damage or wear.



3 This is the old-school way to do it! Cut a hole in the corner of a small plastic bag and push the cable through the hole. Secure the bag to the cable with a rubber band and then invert the bag to create a funnel.



5 Remove your funnel, wipe down the cable, and reinstall it on the bike. Make sure you return the adjusters to their original positions, or better yet check your owner's manual and set the slack to the manufacturer's recommendation.



2 Select your lube. Some cables have a slick inner sheath that will gum up if exposed to solvents or harsh chemicals, so do NOT use WD-40 or any other type of penetrating oil. Regular motor oil works great if you don't have an appropriate aerosol product.



4 Add some lube to the funnel (about a tablespoon) and hold the cable vertically so that gravity can pull the lubricant down into the housing. Work the inner wire up and down to help move the lube along. Once the lower end of the wire gets wet, you're done.



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FIZZ FOR THE ROAD

Building a More Comfortable, Capable Yamaha FZ-07 On a Budget



Every time we hop off a full-size touring machine—whether a sport-tourer, adventure beast, or big-boned cruiser—and then jet around on something as nimble and enjoyable as the FZ-07, we start to wonder: Do we need all that *stuff*? Could we tweak the little Yamaha just enough to make it a reasonable mid-distance steed?

The short answer is yes, and the longer one is that, really, it didn't take

much. Because the Fizz is already halfway there—with a torquey yet surprisingly smooth parallel-twin engine and effectively soft suspension calibration, we left the core motorcycle alone. And in doing so, we were able to focus on the little things that make a traveling machine more effective.

Start with some wind splitting. Yes, this is a naked bike, and we know what the term means, but there's no reason a

tidy windscreen like the National Cycle VStream+ can't dramatically improve highway comfort. Nine inches high and 15.4 inches wide, the VStream+ Sport/Tour we tried is the Marcia Brady of National Cycle's three-screen lineup for the Fizz; the smaller Sport is 6.5 inches tall, while the bigger Touring is 11.5 inches high. We were looking for the middle ground between bikini top and mini-Windjammer. Found it. The



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screen cuts a clean hole in the atmosphere, directing windblast off a normal rider's torso while leaving his helmet in smooth, turbulence-free air. A typical pilot will go from feeling the need to lean into the wind at 75 mph, as on the stock bike, to being happy to sit there, totally upright, and take in the sights behind the VStream+. A little wind protection goes a long way toward fighting on-road fatigue.

Comfort above and, with Yamaha's accessory Comfort Saddle, ah...comfort below as well. Shaped much like the stock seat, with a narrow nose to benefit short-legged riders, the Comfort Saddle

has firmer padding and a nice no-slip, suede-like cover, which makes it a big improvement over the thin stocker. Now it's no trouble to drain the FZ's 3.7-gallon tank in one sitting.

For carrying capacity, we turned again to the Givi Easylock saddlebags (*MC Tested*, October '14, MC). These semi-hard-shell bags clip to bike-specific mounts and look smoothly elegant. Not huge, at 15 liters each (expandable to 18 liters), the Easylocks tuck in tightly to the FZ's tailsection and provide enough weatherproof (with the included rain covers) storage for a long weekend. To supplement

the saddlebags, we dropped on a Cortech Micro 2.0 tankbag, which is a super-handly way to carry your wallet, cell phone, and, ah, *what-nots*. Note that the FZ's tank cover is plastic. No problem, three "super powerful" neodymium magnets (from a hardware store, \$3) glued underneath keep the lightweight Micro from flying away. Or you can use the supplied straps.

For approximately \$1,000, we turned the FZ-07 into a righteous little traveling machine perfect for newer riders and those of, shall we say, compact stature. Proof, once again, that you don't need a big bike to go long distances. —Marc Cook

Indian Scout

WRIST: Brian Hatano

MSRP (2015): \$11,299

MILES: 5,404

MPG: 44

MODS: Reduced Reach seat and foot controls



If you build or customize bikes (or just fabricate parts for them), you know how it starts. First you look at it, then you sit on it, then you ride it. If you're lucky, you'll love everything about it. If not, then the mental gears start to grind as you try to figure out exactly what it is that doesn't feel or look right. In the end, modifying and customizing is all about changing what somebody else has invested a lot of time and effort into designing.

Once you decide to venture out of the factory-stock realm, everything becomes subjective. Changing the shape of a fender or tank, for example, might appeal to some owners, while the rest will think the bike is ruined. Changes to the ergonomics, particularly the seating position, are even more intensely personal.

As you know, the Scout can be outfitted with a combination of extended- and reduced-reach handlebars, seats, and foot controls. Not only can you use these options to better adapt the bike to your body size, but you can also use them to change your riding posture and position.

For me, the Scout has near-perfect cruiser ergos in terms of reach, but I really want to get away from the forward-control configuration. I mentally calculated that by bringing the foot controls back a couple inches with the reduced-reach option, and pushing myself forward with the reduced-reach seat, I could swap the bars out for a set with less pull-back and a lower, more aggressive angle.

A set of custom-made floorboards or mid-controls would be ideal for my master plan, but I want to keep the mods cost-effective and doable for someone who might have similar goals for their Scout. So I decided to experiment with Indian's reduced-reach seat (indianmotorcycle.com; \$250) and foot controls (\$150) to see how close that setup would come to a mid-control configuration.

I found the perfect handlebar for the transformation (more on the bar next month), which I installed to test the fit of the seat and foot controls. The reduced-reach seat puts more padding in the rear support area and pushed me forward just

enough so that I could lean forward into a slightly more aggressive position. It's a keeper (for now, at least).

I'm on the fence about the reduced-reach foot controls. Although they brought my feet rearward to a more standard spot, they also set the perch slightly higher, making me feel a little cramped. It's not uncomfortable though, so I'm going to give them a couple hundred miles before deciding whether to keep 'em or switch back to the original controls.

Indian's offset bracket moves the foot controls up and back. The black Allen heads are where the peg and shifter are attached in the stock location.



Suzuki V-Strom 1000 ABS

WRIST: Marc Cook

MSRP (2014): \$12,699

MILES: 14,521

MPG: 41

MODS: Holeshoot exhaust, Power Commander, Continental tires



UPDATE
09



BRIAN MACLEAN

As predicted, the next big maintenance event came around this month. The 14,500-mile service calls for replacement of the engine oil and coolant, as well as the spark plugs alongside various other inspections. Per the manual, Suzuki calls for oil-filter replacement only at 600 and 11,000 miles, but I have been replacing the K&N filter every oil change, at 3,500-mile intervals. At 14,500 miles, you're also supposed to check the V-Strom's valve clearances for the first time.

Good and bad news on this service. First the good: All eight valves were within spec, though all exhausts were on the tight side of the range. Overall, the inspection is pretty straightforward, though you'll want to drain and remove the radiator for better access. Bad news? Suzuki recommends changing spark plugs at 7,500 and 14,500 miles (repeating every 7,000 miles). These are special NGK plugs that cost \$40. *Each*. Um, no way. I removed all four, inspected them carefully, and returned them to service. They look great, and the gaps are right on. I'm not sure what Suzuki has in mind, but if this were really my bike there's no way I'd pop \$160 every 7,000 miles for new plugs.

The Avon Distanzias lasted just shy of 5,500 miles, with the rear tread down to the wear bars and the front showing moderate cupping. It's interesting: The previous Michelin Pilot Road

4 Trails started to handle oddly before they looked worn out, but the Avons worked well despite evidence of them being done. In their place, Continental's new TKC 70 tires (conti-online.com; \$150 front/\$195 rear). So far, the Suzuki likes these tires, though steering isn't quite as crisp as it was on fresh Distanzias.

I got to the bottom of the V-Strom throwing error codes with the Power Commander in place. Turns out I was sent the wrong O2 sensor plugs—the V-Strom needs the O2 Optimizers—so now the Power Commander V (powercommander.com; \$380) can be tuned to get the most out of the Holeshoot Performance 17-inch slip-on (holeshoot.com; \$420). How much more? On the dyno, the stock and Holeshoot systems are almost identical, with peaks within 0.4 hp and 0.4 pound-feet of torque—the Holeshoot makes just that much more. But the pipe boosts torque from 5,000 to 8,000 rpm, sounds great, is delightfully mellow (just 75 dBA at idle and 79 dBA at 2,000 rpm), and is a whopping 6.6 pounds lighter.

I like the sound of this setup, but I have to question the economics of spending \$800 to get so little extra power. I'm still fine-tuning the PCV maps and so far have been able to smooth the DL's on-throttle abruptness, but the sharp trailing-throttle response remains. What's more, mileage has fallen to 37 mpg over the last two tanks. But I'm not giving up yet!

Continental's TKC 70s are 60/40 street/road tires sized for big ADV machines like the Strom.



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One of my earliest impressions of the Zero S pertained to its acceleration. I noted that thrust off the line was pretty soft, but once past 30 mph it accelerates quite quickly under full throttle. It's actually tricky to gauge how fast you're traveling on the Zero because there's no engine revving out beneath you, no rising exhaust note, and no shifting of gears. It's a serene experience.

Back to the off-the-line acceleration though. I was curious to know how the Zero stacked up against an "average" motorcycle, so I mounted our VBOX Sport GPS datalogger to the Zero and then a Yamaha FZ-07 and measured 0-30 and 0-60 mph times.

I cruised around on the Yamaha first, accelerating from stops quickly but responsibly. Here's how the FZ-07 did: 0-30 mph: 2.2 seconds; 0-60 mph: 4.6 seconds.

Then I rode the Zero on the same route. The bike offers three



ZERO S

WRIST:
Ari Henning
MSRP (2015):
\$17,840
MILES: 1,500
MPG: Not a concern!
MODS: None



UPDATE
04

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power modes, and I put it in Sport for the briskest performance. Since the Zero is a single-speed twist-and-go bike like a scooter, there isn't much variation in how you launch it—you just roll the throttle to the stop. Here are the Zero S numbers: 0-30 mph: 3.1 seconds; 0-60 mph: 6.5 seconds.

The numbers make it clear: The FZ-07 is quite a bit faster than the Zero, and I wasn't even wringing its neck. The FZ-07 benefits from less weight (400 pounds for the Yamaha versus 452 pounds for the Zero), a gearbox, and more horsepower (a measured 66 hp versus a claimed 54 hp for the Zero), but the Zero has more torque (a claimed 68 pound-feet versus 45.5). One of the benefits of electric motors is that they offer peak power from the word go, so you'd expect the Zero to fire off the line. It's evident, however, that the bike's computer doles out power gradually. I suspect that is to preserve the batteries but also to protect the rider—lose rear-wheel traction on an e-bike and it'll spin up instantly since there's so little mass to accelerate. Don't ask me how I know!

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MC GARAGE

DOIN' TIME

Harley-Davidson Road Glide Special

WRIST: Andy Cherney

MSRP (2015): \$23,699

MILES: 11,495

MPG: 44

MODS: 10,000-mile service,
Premium Ride shocks



UPDATE
08



It's been a busy cycle for Big Blue, particularly for maintenance. For one thing, Harley issued a recall back in April, affecting certain models in the 2014-2015 Touring lineup, and, yep, the Road Glide Special was on the list. Apparently, a faulty clutch master cylinder in the recalled motorcycles could lose the ability to generate enough lift to disengage the clutch, due to a chemical reaction. The NHTSA says it's especially prone if parked for an extended period. Our Glide hasn't been all that idle, but I figured better safe than sorry, so an appointment was made with Salem Harley-Davidson. And since the Road Glide's odometer had since shattered the 10,000-mile mark, I'd tack on a 10K-mile service while there. To really test the dealer's patience, I also figured it'd be a good time to get the just-delivered H-D Premium Ride shocks installed.

The recall service was pretty straightforward. Then on to the 10K service, which consisted of the usual component, fluid and fastener checks, a belt adjustment, a spark-plug swap, and, on the service manager's recommendation, a change to H-D SYN3 synthetic oil, due to my increasingly heavy touring schedule. Note that SYN3 is a 60/40 blend, not a true synthetic, and it's also not cheap. The 10K service rang in at around \$400.

Now for the new suspenders. Salem H-D says the Premium Ride shocks in the standard length (at your local Harley dealer; \$550) are an easy install but, more important, offer more robust compression

and rebound capabilities—qualities that are in short supply (pun intended) on the stock RGS. According to Harley, the upgraded Showa shocks sport larger chambers (40mm-diameter pistons and 14mm rods) so they react more quickly to bumps and better resist bottoming.

And what a difference! The ride is far more controlled, and blowing through the stroke on hard bridge surface transitions in town is no longer an issue. The Glide is more composed, with the tires tracking over irregular pavement much more cleanly. Even better, the RG now has better ground clearance, which makes sense because the bike comes stock with a paltry 2.1 inches of rear-wheel travel. Installing the PR shocks increases suspension travel by almost 50 percent! As with the stockers, spring preload can be adjusted for changing loads using a convenient knob on the left shock. Yes, the new shocks raise the seat height approximately three quarters of an inch, but trust me; it's completely worth it.

Harley's Showa-made Premium Ride shocks are a dramatic improvement, with almost an inch of additional travel.



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1998–2003 KAWASAKI ZX-9R

⚙️ The literbike class rewards winners, not also-rans—as a racer once famously said, second place is just first loser—and Kawasaki's ZX-9R was always the nice guy of the class, maybe not finishing last but rarely landing on the top step of the podium. Partly, this was an indication that Kawasaki was a little out of sync with the marketplace.

The original ZX-9R arrived in 1994, two years after Honda's super-lightweight CBR900RR was announced. The concept was to have a 750-sized package carrying literbike power. It worked for Honda but not as well for Kawasaki, whose Ninja was considerably porkier.

Kawasaki stayed on the job, though, and by 1998 produced an entirely new version of the ZX-9R with an aluminum frame, lighter wheels and suspension, and a heavily revised engine that dropped the counterbalancer for weight savings. It was a dramatic leap forward, weighing a claimed 403 pounds dry, which, if you believe the numbers of the age, was more than 60 pounds lighter than the previous version. Unfortunately for Kawasaki, that same year Yamaha unleashed the truly light and potent YZF-R1. Can't these guys catch a break?

Perhaps not, but the fact is the '98-and-later ZX-9R was a fantastic all-rounder, sacrificing lap times and spec-sheet bragging rights for a more open riding position, tremendously

torquey and smooth engine, and the kind of stability that allows you to ride all day in comfort. Another update in 2000 brought new bodywork with a stiffer frame, revised dual headlights, and new ram-air intakes. The '02 received further mods, including updated brakes and suspension, as well as engine changes to boost midrange power. By this time, the carbureted ZX-9R engine was well developed and dead reliable. Ultimately, 2003 was the last year of the 9R, since Kawasaki had finally decided to do something serious about the R1 and the GSX-R1000 with the truly beastly ZX-10R.

Its relative lack of popularity makes the 9R a good buy on the used market, and its long run means parts are easier to find at salvage yards. The biggest issue with used bikes is paint flaking off the wheels and the swingarm. Although the engine and trans are generally sturdy, some gearboxes jump out of third gear on hard acceleration. A complete service record is always a plus but especially with the 9R; carb balance affects throttle response and gas mileage, and the valves are supposed to be checked every 7,500 miles. Inspect the front brake rotors for warping, and make sure the pistons in the six-pot calipers (used until 2001) retract fully.

As with other pre-owned sportbikes, the steering head

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ALSO SMART...



1993–1997 SUZUKI RF900

Leaning more toward the second word in sport-touring, the RF900 is a bull-strong, well-built, and friendly 900. With a torquey engine cradled in a steel frame, it's both an okay sportbike and a pleasant everyday ride. Nothing fancy here, really, but quality and value seldom are. If you want a racer, buy a GSX-R.



1992–2003 HONDA CBR900RR

Introduced in '92 as a 900, the CBR-RR's engine eventually grew to 954cc. At 457 pounds wet, the original 900RR undercut its opposition by as much as 144 pounds. Handling is quick bordering on twitchy, and 16-inch front tires are getting scarce, but the running gear is robust. At a time when supersports were getting fat and happy, the 900RR totally reset expectations.



1994–1998 DUCATI 916

Sex-on-wheels styling, World Superbike juggernaut, glittering moto-jewel in any sportbike rider's crown. Fantasy: Everyone will want to be you. Reality: High-maintenance costs allied to less-than-stellar reliability. Plus, everyone, it seems, wants a 916, so straight, unmolested, properly maintained examples are getting extremely hard to find. If you find the right one, expect to pay dearly for it.

bearings sometimes take a beating from wannabe wheelie kings; pay attention to both the steering effort and any on-center notchiness that might cause slight weaving when riding in a straight line. Run the suspension adjusters all the way in both directions to see if they're free of corrosion; hard-to-reach components don't age well if the bike is ridden in the rain and not cleaned regularly. —Jerry Smith

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MEGAPHONE



This 60-year-old photo of a man racing in Indonesia, hanging in a California auto shop, connects the dots of a remarkable story.

© GEOFF MESMAN COLLECTION

THE MAN ON THE NSU

The photo hanging in the lobby of Geoff Mesman's auto-repair shop in Mission Viejo, California, showed a CBR600 rider carving a corner at Fontana Raceway—it was Geoff, age 44, having a bit of trackday fun. Seeing that image triggered a flashback to Surabaya, Indonesia, 1956. I was eight years old when my father took me to see a motorcycle race. We rode there on his German NSU 250. Dad pointed out a competitor, also on an NSU: “*Dat is Mesman. Hij rijdt goed.*” Indeed. Mesman won the race.

Indonesia had been a Dutch colony for 400 years. Intermarriage created a subgroup of Dutch-Indonesians. That was us. And the Indonesians despised us. By 1958, things turned violent, and, with our lives at risk, dad packed up the family and immigrated to California. Was there a more ideal place for a young man to pursue a motorcycle passion?

Within days of turning 16, I bought a used 125cc Honda CB92. I rode it for two years then decided to race it. Then a letter arrived: “You are hereby ordered to report for induction into the Armed Forces of the United States.” The Army needed door-gunners for their fleet of Huey helicopters in Vietnam.

I flew my first combat mission in April

1968, at age 19. By mid-May, I’d lost three helicopters and two pilots to enemy action and a crash. To decompress from combat, some of my colleagues turned to alcohol, hookers, weed, or worse. I took a different route. At night I’d pore over a stack of *Motorcyclist* magazines and dream of the day I would ride again.

In March 1969, a second helicopter crash sent me home. I got a factory job bottling orange juice for \$1.35 an hour and spent every penny on a 250cc Yamaha road racer. After the leaders lapped me in the Novice 250 race at Daytona in 1972, I sold the Yamaha and enrolled in college.

Four years later, degree in hand, I headed for England and bought a \$400 Honda CB250. The CB took me to the Isle of Man and then the Belgian Grand Prix where I met American racer Pat Hennen. Pat needed a mechanic; I needed an adventure. Three weeks later, Pat won the Grand Prix of Finland, the first American to win a World Championship event. Pat won two more GPs before his tragic crash at the Isle of Man in 1978, which ended his career and sent us both home.

Back in California, I joined Kawasaki to develop the engines that Eddie Lawson and Wayne Rainey rode to multiple Superbike

championships. In my spare time, I built a 750 endurance racer. In 1982, co-rider Roger Hagie and I won the AFM 6-Hour at Riverside. Racing success at last! Then a soprano named Karen stole my heart. When two babies came, my riding days were over.

Today, Sara is 24 and rides a Husky dual-sport, while other daughter Hilary prefers a Honda Civic. That’s how, in early 2014, I ended up in Geoff Mesman’s shop. As the memories of Indonesia 1956 came flooding back, my eyes wandered to a second photo on the wall. And I froze. The faded black-and-white print showed a young rider leaning a vintage racing motorcycle—an NSU—into a corner.

“What’s this, Geoff?”

“My father,” he said. “He raced motorcycles in Indonesia in the ‘50s.” I couldn’t believe the words coming out of his mouth. “Dad is 77, and he no longer rides, but he owns this shop. He’ll be in next week.”

Fifty-eight years later I had lunch with Harry Mesman, the NSU racer who kickstarted my motorcycling passion. I also set a place at the table for dad, but he didn’t show. Dad passed away in 2002. Still, I’d like to think he was there. After all, who else do you suppose could have arranged that meeting?



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